GOVERNMENT OF INDIA.

REPRINT NO. 19 OF RECORDS IN THE PUBLIC WORKS DEPARTMENT.

PROGRESS REPORTS

OF

FOREST ADMINISTRATION

IN THE

CENTRAL PROVINCES

FOR

1867-68 & 1868-69.

TOGETHER WITH REVIEWS BY THE OFFICIATING CHIEF COMMISSIONER,

AND

ORDERS THEREON BY THE GOVERNMENT OF INDIA.

Calcutta:
PUBLIC WORKS DEPARTMENT PRESS.
1870.

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No. $\frac{2133}{199}$

FROM

THE SECRETARY TO THE CHIEF COMMISSIONER,

Centr l Provinces.

To

THE CONSERVATOR OF FORESTS,

Central Provinces,

Dated Nagpore, the 7th July 1868.

SIR,

I am directed by the Chief Commissioner to acknowledge the receipt of your Report on the Forest administration of the Central Provinces during the year 1867-68.

Explorations

2. Although in previous years all the Government forests had been explored and their condition described, something has been done during the past year in examining tracts imperfectly known. In the Eastern Division Mr. Jacob visited the forests in the Konkair Zemindaree, which lies between the Raepore district and Bustar; and also the small States of Manpore and Lohara, and the Pergunnah of Sunjaree, which lie near Panabaras. Konkair Mr. Jacob found to be a flourishing State, well-wooded, with numerous villages and good cultivation, the people rich in cattle, and seemingly of a disposition less migratory than the Gonds. Here was discovered a forest of teak extending for 7 miles down the Sendree nullah, which you state is a continuation to the eastward of the Darwa forest; unfortunately many trees were found to have been recently cut down, but the discovery is a promising one. In the Sunjaree Pergunnah also a patch of good teak was found, which you recommend to be taken up for a reserve. The Chief Commissioner will be glad to receive proposals from you for so doing.

3. In the Southern Division an examination by Captain Jarrett showed that the patch of teak which was found by you last year east of Tulwarra was only a portion of another large teak forest similar to that at Aheree. This forest is said to cover about 15 square miles and to contain some fine timber. Here again it was found that much fine timber had been wastefully cut down and left to rot.

4. In the Northern Division, Captain Ward, the Deputy Commissioner of Mundla, has done the Forest Department good service in drawing up a descriptive account of the Sal forests, which extend along the Ghat range from the Bormeyr river to Umurkuntuk.

5. The forests near the head of the Gour river east of Jubbulpore, and those in the bend of the Nerbudda near where the Bormeyr joins it, were also examined and teak bearing localities suitable for the formation of Reserved forests were selected for that purpose.

Demarcation.

6. Passing on to the demarcation of Reserved forests, the Chief Commissioner notices with satisfaction that in the Northern Division this work has been, in your own words, "thoroughly, efficiently, and cheaply" carried out; and that with the exception of the Sal forests, all the reserves have been marked off by broad lines and permanent boundary marks. In the Central Division this work seems also to have been nearly completed. In regard to your proposal to fix the southern boundary of the Beogurh Reserve a few miles to the north of its present position, the Chief Commissioner will await the receipt of more detailed proposals. In the Western Division fortuitous circumstances considerably impeded operations during the year. In the Southern Division the work is going on, as also in the Western Division, where the masonry pillars round the Kunturra nallah Reserve have been erected and the demarcation of the Lown forest is progressing. With regard to the Lown forest, you state that it contains no good timber, and that you do not anticipate that it will be of much value. If this is so, Mr. Morris thinks it would be undesirable to keep up a reserve which would give no return ; but he will await a further report from you on the subject.

7. The Toplah Sâl forests you remark cannot be demarcated unless a map of the forest is previously prepared after a regular survey of the forest; and you suggest that either a small party from the Revenue Survey be detached on this work, or else that the Forest Department be allowed to entertain a small special establishment for the purpose. This latter proposal has already been sanctioned, and as soon as the forests have been properly surveyed and a map prepared, Mr. Morris hopes that the demarcation will be proceeded with.

8. The Officiating Chief Commissioner also approves of your suggestion that before the Revenue Survey goes to Sohawa next season, the Assistant Conservator of the Western Division should take up some of the Sâl bearing tract in Sohawa for the purpose of forming a reserve.

Protection and conservancy.

9. The Chief Commissioner is glad to learn that considerable success has attended the endeavours of the Forest Department to keep fires out of the reserves. You mention that in the Northern Division the precautionary measures taken in the western portions of Jugmundul and the Sawareegogurh reserve, having an area of about 53 square miles, had been quite successful. Up to the date on which your report was written no fires had occurred. In the eastern portion of Jugmundul and in the Bijiragogurh forests the experiment was tried of burning the grass while it was green. This latter process from your account appears not to be so efficient as keeping fires out altogether, as seedlings though not totally destroyed, are generally materially damaged, and the grass will spring up as strong as ever; while if fires are kept out of the forests alto-

gether, the quantity of grass is very much diminished. It seems then that there can be no comparison between the two systems, as regards efficiency; but Mr. Morris thinks the practice of burning the grass while green might be adopted in those reserves, in which it is impossible at present to provide an establishment for keeping out fires altogether.

10. The Boree forest in the Western Division has now been preserved from fire for the fourth year. It is to be regretted that it was found impossible to preserve the Baitool forests in the same way and to keep the fires away from the young teak trees near the Korye pass; but the Forest Officers must not allow themselves to be discouraged by their want of success. They must persevere in their efforts.

11. The Chief Commissioner has noted your remarks on the mischievous practice of tapping the Sâl tree for resin. Mr. Morris considers it to be highly objectionable. All Deputy Commissioners will be requested to give this matter their best attention and to suppress the practice as far as possible.

12. It is unfortunate that the results attending the establishment of plantation of forest trees have been so little favorable, and afford so little encouragement. The Benneyr plantation seems to have failed altogether during the year, as only 350 seeds germinated out of 20 maunds sown last year in the nursery beds. Mr. Grahame appears to have succeeded better with the forest seedlings which he planted. In Gurakota too, the seedlings have begun to shoot up.

13. The Sonawani plantation in the Central Division is also prospering, and on the Machna, in the Western Division, the trees though small, are reported to be alive and well. The failure, therefore, has not been total. The Officiating Chief Commissioner has noted your remarks on the necessity of irrigation on a large scale, if plantations are to be maintained with success; and your proposal to form large tanks in places where they can be made at a reasonable cost, the plantations to be established below them. If it has been definitely established that seedlings will not thrive in these Provinces in plantations without a large supply of water, it may be necessary to take into consideration some such plan as you propose. In the meantime the Chief Commissioner will await more specific proposals on the subject of irrigation, and he hopes that more satisfactory results will be achieved during the current year.

14. Mr. Morris has observed with satisfaction that the Chinchona plants brought from Ootacamund by Mr. Davidson are doing well, though the seed had failed to germinate.

15. The sowing of tea seed at Puchmurree is an interesting experiment, and so far seems to have been successful.

16. The felling operations were not carried on during the year on any extended scale. In the Northern Division no trees were felled, except such as were old and decayed, or those which had been previously killed by girdling. In the Eastern Division there was no felling, except in the Panabaras leased forests; and in the Western Division 3,000 old trees which were deteriorating were cut down.

17. The timber felled in the Panabaras forests was either removed to the Depots or stored outside the forest at places where it will be safe from fire and easily accessible to carts. A large portion of the Sal timber felled last season in the forests near Kunturra was likewise removed from the forest. The Assistant Conservator says that but for the want of carts he would have been able to remove a much larger quantity of timber; and you mention that in the Western Division, Lieutenant Doveton was, through the same cause, prevented from delivering to the Department Public Works at Saugor 50,000 cubic feet of timber promised by him. To obviate any such difficulty in future, you propose that a certain number of carts should be made up for the department in each Division. It is, no doubt, the case that cartmen, if they can obtain employment elsewhere, are averse to letting their carts go into the forests; but the Officiating Chief Commissioner hardly feels satisfied that it would answer for the Forest Department to keep up a very large stock of bullocks. At present some carts are being made up for the Aheree forests. If they prove to be successful, it may be advisable to increase their number. Mr. Morris regrets to learn that so little progress has been made during the year with the Delakaree sleeper work. And he trusts that better results will be shown in future. In the Northern Division a considerable quantity of timber was successfully floated down from the Depots in Mundla to the Goareeghat Depot; and the Officiating Chief Commissioner concurs with you in thinking that Lieutenant Douglas and Sheikh Mohecodeen are entitled to much credit for the successful manner in which they floated 154 Sal sleepers on rafts to Jubbulpore. Mr. Morris also approves of your directing the preparation of 10,000 of such sleepers in the Toplah forests, which will relieve the Delakaree Sâl forests near Puchmurree, and enable the sleeper work to be pushed forward.

18. During the year the roads leading to the forests have received attention. In Mundla the District road was carried out from the Halon river to Mundla, and the Officiating Chief Commissioner is glad to hear that "carts now begin to go regularly from the plains of Raepore to Mundla" by the road opened by the Forest Department. This is very satisfactory, and the Officiating Chief Commissioner hopes further to improve this important road, so as to offer facility for the importation into the Jubbulpore market of the Raepore grain, which since the opening of the Railway has had to compete with the grain produce of the north.

19. A copy of paras. 51 to 54 of your report relative to the granting of contracts by the Department Public Works, will be sent to the Chief Engineer. With regard to your remarks on the 80 fine logs of squared Teak and Sessoo from Aheree, which though offered to the Department Public Works at a lower rate than was being paid to contractors could not be purchased by the Department, because they were already under engagement with contractors, the Chief Commissioner thinks that such difficulties might to a great extent be obviated if the Forest Department were to inform the Department Public Works beforehand of the amount of timber which they could supply.

20. The Officiating Chief Commissioner concurs in your remarks on Mr. Brereton's conclusions regarding the soundness and growth of trees in the Aheree forest. No doubt experiments on a much larger scale must be made before the conclusions can be accepted, and Mr. Morris requests that measures may be taken with this view.

21. While attributing the great unhealthiness of the Chanda forests to the scarcity of water prevailing throughout them, you suggest the purchase of some American screw pumps which have been successful in Abyssinia. Before taking up this subject, the Chief Commissioner would wish you to send in a separate report on the matter and submit specific proposals.

22. Mr Morris also desires that you will refer separately the points adverted to in the 101. 102, and 103, paras. of your report.

23. In regard to your remarks para. 32, on the merits of Darogah Sheikh Moheeodeen and his fitness for promotion, the Officiating Chief Commissioner will await a definite recommendation from you. In para. 20, you refer generally to the advisability of obtaining for the Forest Department young men of respectable family and good education, who would be thoroughly trained to Forest work, and when fit to take a responsible position, would be suitably provided for. The Officiating Chief Commissioner is inclined to think that the Forest Department is one particularly well adapted for the recognition of claims of native officials. The main qualities required from a Forest Officer—activity, honesty and intelligence—may no doubt be found among native officials more easily than the independent spirit and fearlessness of responsibility, which are the first requisites in purely administrative appointments.

GENERAL REMARKS.

24. The revenue from Unreserved forests exhibits a considerable increase, amounting to nearly 40 per cent, notwithstanding the falling off in some districts owing to the fall in the price of Mhowa.

25. The occasional pressure of the Forest Rules on the agricultural classes which you notice, has already engaged the attention of the Officiating Chief Commissioner. As the system of Forest administration approached completeness in one direction it was to be expected that corresponding weaknesses should be developed in the other. The present system has undoubtedly many advantages. It has placed the ownership of large, and sometimes ill-explored tracts on a clear and definite footing. It has prevented Forest produce from becoming the monopoly of any one class, and has rendered such important necessaries of life as wood and grass equally accessible to all sections of the community. Lastly, it has been the means of raising a considerable revenue by a simple and sure method.

26. On the other hand, it has been found by experience that though all classes have equal opportunities for securing the leases of Forest tracts, yet in practice the leases usually fall into the hands of speculators who are better acquainted with the routine of court and commercial business, and are more alive to the advantages of traffic in Forest produce than the bulk of the agricultural population. The result often is that purchasers are put to inconvenience, owing to the inefficiency of the establishments maintained by the lessees, and that an opening is made for impositions on the poorer and more ignorant sections of the population.

27. It would therefore seem that the system of collection must either be so watched and supervised that irregularities cannot escape detection, or that it must be so simplified that there will be no longer any room for malpractices. The former alternative would be difficult of execution, and perhaps dangerous in its results, and the Officiating Chief Commissioner is therefore inclined to attempt something in the direction of the latter. It is with this view that he has issued the instructions to which you refer. And as he is further satisfied that no one system, however excellent, can at once meet the requirements of many districts varying widely in physical character and in population, he has directed that the circumstances of each district should be considered singly and separately with a general regard to certain fixed principles of wide application.

28. The very recognition of this cardinal principle, that the system should be adapted to the people, not that the people should be submitted to the system, makes it impossible to lay down an exact programme of the course that it may be eventually necessary to take; but the Officiating Chief Commissioner believes that the position of Forest administration, with regard both to the people and to the State, has now been distinctly placed before District Officers, and that the various principles and methods of management applicable to these Provinces, have been explained to them with sufficient clearness and detail. The Officiating Chief Commissioner does not conceal from himself that a thorough scheme of local adaptation, by which abuses will be lessened while the revenue is not injured, will demand both thought and local knowledge from District Officers. But as the present revenue is admittedly light, considering the extent and value of the forests from which it is derived, it should not be impracticable nor even very difficult so to adjust it, that it should sit easily on the people. In the one experiment of the kind that has been tried (in Chanda) the results appear very encouraging both financially and generally.

29. The question of Dhya cultivation must be intimately interwoven with any general scheme for the improvement of forest administration. Experience tends to show more and more that though it is comparatively easy to check this wasteful practice in forests bordering on the open country, yet it is hardly practicable or wise to altogether repress it by the strong hand in the remote haunts of such tribes as the Bygahs of Mundla or the Mariah Gonds of Chanda. Indeed it is even a question whether the Dhya cultivator is not the

natural pioneer of the more regular husbandman in vast and distant tracts of uncleared scrub jungle. It is only where the forests contain valuable trees, or where from their position they are necessary to town populations as firewood and grass reserves that the cultivation by axe and fire is really very deleterious. The Toplah Sâl forests, regarding which you quote from Captain Ward, come under the former class; and the Officiating Chief Commissioner is glad to observe that you are taking measures for their conservation. In the meantime the Deputy Commissioner has not been altogether without success in his attempts to wean the Bygahs from their wasteful mode of cultivation, and though it cannot be expected that they should give up a habit perhaps centuries old in a day, there can be no doubt that the more they are brought into contact with the outer world the less they will feel the weight of ancestral prejudice. The Forest Officer can only enforce his rules of exclusion; and, as Captain Ward points out, too rigid a suppression of their engrained habits without providing an outlet for their energies, might turn the Bygahs from occasional destroyers of wood into habitual enemies to all constituted rights. The District Officer's duty therefore comes in where that of the Forest Officer ceases; and difficult as it must be to induce these semi-nomads to settle down and cultivate by the plough, the partial success already attained will probably be an example to the tribe generally, which, followed up by careful treatment, may lead to large results. As yet it would seem that these tribes had hardly been reached by outside opinion, and much may be anticipated in their case from the combined action of an intelligent interest on the part of Government officials, and a gradually increasing contact with more civilized and settled tribes.

30. The financial results of the year have been as follows:—

CREDIT.	*Rs.*	DEBIT	*Rs.*
Cash Receipts of the year ..	3,48,974	Stock in hand at beginning of the year	2,28,947
Timber in hand at the end of the year	2,34,878	Outstanding debts due to Forest Dept. at beginning of year	23,810
Outstanding debts due to Forest Dept. at close of the year ..	38,112	Expenditure of the year ..	2,12,099
		Balance in favor of Forest Dept.	1,57,108
Total ..	6,21,964	Total ..	6,21,964

There was thus a net profit on the Forest operations of the year 1867-68 of Rs. 1,57,108. This profit is not so large as that shown for the previous year; but the reason is that it was found necessary to make a new valuation of the stock in hand for the year 1866-67, which in the Northern and Western Divisions resulted in a depreciation of the stock by Rs. 70,000 in round numbers. When this is taken into consideration the results of the year cannot be considered unsatisfactory. The amount of the outstanding debts due to the Department seems large, and is so compared with the preceding year; but Mr. Morris considers the explanation given by you to be satisfactory, viz. that the "annual accounts are closed just when the working season in the forests is at its very height, and when large sums of money must of necessity be out on the works."

31. The Officiating Chief Commissioner hardly thinks it very material whether the receipts from Unreserved forests are credited to Forest Revenue or to any other heading. In one respect the present course is perhaps preferable to any other. The tracts administered by Deputy Commissioners, are as much part of the general Forest system of the Provinces as the more valuable reserves which are directly under the Forest Department, and it may be as well that the whole revenues derived from forests should be shown as one item, if only to show the real and rising importance of these hitherto neglected wastes. If it can be proved that they are really a paying property to the State, there will be good warrant for further expenditure in their development, and Mr. Morris is of opinion that a larger diversion of their revenues to local purposes than has as yet been attempted will be a most reproductive outlay. In the meantime he is satisfied that your Subordinates will not be allowed to sacrifice substantial progress to a show of rapid returns. They must remember that the work of your department has been hitherto chiefly that of restoration and development, and that in increasing the value of their stock, they are doing more to fill the public treasury than if they looked merely to immediate profit.

32. Lastly, I am to convey to you the Officiating Chief Commissioner's cordial acknowledgments of the great services which you have rendered to this Province during your long connection with its forests. Mr. Morris while fully alive to the apparent smallness of immediate results which has made you take so modest an estimate of the success of your department, is satisfied that more progress could not reasonably have been expected, and that what ground has been gained is well and firmly established. Above all, he desires to record his sense of the liberal spirit in which you have viewed departmental matters. No display of unassisted energy or skill could have ensured you success without the hearty co-operation of District Officers, and the good-will and confidence of the people generally. And it is your highest praise that you have known how to gain these without neglecting objects which would naturally claim your more immediate attention.

33. The Officiating Chief Commissioner fully concurs in your remarks on the merits of Lieutenants Doveton and Douglas. These Officers have exhibited an interest and an intelligence in the performance of their often arduous duties which merits high praise. Mr. Morris notices with satisfaction that Mr. Jacob's services have been so favorably reported on by you, and that Captain Jarrett seems to have made an excellent beginning. He also begs that you will convey his acknowledgments to Mahomed Padshah, Sheikh Moheyool-deen, and Sheikh Ahmed, for their meritorious services.

I have the honor to be,

Sir,

Your most obedient Servant,

C. GRANT,

Offg. Secretary to the Chief Commissioner,

Central Provinces.

No. A 227.

FROM

THE CONSERVATOR OF FORESTS,

Central Provinces

TO

THE SECRETARY TO THE CHIEF COMMISSIONER,

Central Provinces.

Dated Camp Seonee, the 15th January 1868

SIR,

I HAVE the honor to submit the Annual Forest Report for 1867-68. It is drawn up in the revised form recommended by the Inspector General, and will treat of each Division in succession by itself, concluding with a review of the operations of the department as a whole, during the past year.

NORTHERN DIVISION.

2. Comprising the Saugor, Jubbulpore, Mundla, and Balaghat forest Reserves, with the superintendence of the Unreserved forests in those districts, and also in Dumoh and Nursingpore—held by Lieutenant Douglas during the past year.

I.— Survey and examination of forest tracts imperfectly known.

3. Under this head I have the honor to append a most interesting paper by Captain Ward, the Settlement Officer in Mundla, giving a full detailed account of the Sâl forests which stretch along the Ghat range from the head of the Bormeyr river up to Ummurkuntuk. I examined these forests myself in 1860 and can bear testimony to the value of the report. As they are so far distant from Jubbulpore the Forest Department has hitherto been compelled to defer the examination of them, the Officers being occupied with more pressing work in the nearer forests, and I am under much obligation to Captain Ward for his valuable report.

4. Under this head also, in addition to his ordinary forest work (which he has carried out, as he always does, with great zeal,—having been out last year till near the end of July, and again in Camp from the beginning of November) Lieutenant Douglas has specially examined the forests near the head of the Gour river east of Jubbulpore, as well as those in the bend of the Nerbudda near where the Bormeyr joins it, and in both places has selected teak-bearing localities suitable for the formation of reserved forests, and has submitted applications for the land which are now before the Settlement Department.

II.—*Reserved Forests.*

Sub-heads – 1, Demarcation and boundaries

5. A special report has been very recently submitted on the Reserved forests of this Division, and a tabular list of the same is appended to this report. I need only add after personal inspection, that in no Division has the work of demarcation been so thoroughly, efficiently, and cheaply carried out, as it has been here. But at the same time it must be understood that, without in any way detracting from the credit due to him, Lieutenant Douglas has enjoyed special advantages in this Division as compared with some others. Here no complicated boundary disputes have hampered his operations; no pressure about grazing rights have troubled him; and no Railway works have deranged the rates of the labour market in these distant wilds,—all which have been such heavy obstacles to the progress of work in the Western Division. Except the Sâl forests, all the Reserves in this Division are now completely marked off by clear broad lines with masonry pillars built at intervals round them.

6. Generally speaking these Reserves are in a thoroughly exhausted condition, and the seed-bearing trees are deplorably few. From the fact also that they contain the sites of numerous old Dhyas they are much choked with a quantity of dense scrub, in which but few seedlings are to be seen coming up. Their future treatment must be a matter of anxious consideration. At present perfect rest is what they most require. For further particulars I would refer to the tabular list of forests furnished by the Deputy Conservator.

7. It is further proposed to form the following new Reserves in this Division :—

1st.—Near Sigrampore, on the highroad from Jubbulpore to Dumoh, about 35 miles west of the former city. It comprises the block of hills around the Singorgurh fort, and was selected by myself as a particularly favorable locality for the natural production of teak. Its extent is about 8 square miles. Intimation has just been received from the Settlement Department that the land is available for a Reserved forest, and the boundary has been already cut by Lieutenant Douglas. Masonry pillars will be erected without any delay, and the demarcation will be completed.

2nd.—At the head of the Gour Nuddee in the Burelah pergunnah, about 20 miles south-east of Jubbulpore, it is proposed to select about 10 square miles as a Reserved teak forest. The trees are all very young, but are exceedingly promising.

3rd.—In the tract near Singarpore lying in the angle formed by the junction of the Nerbudda with the Bormeyr, about 18 square miles of a now entirely exhausted teak forest, will be demarcated if the land is available.

4th.—A similar but smaller tract lying about 4 miles further east along the Nerbudda, and about 10 square miles in area, near Keoladur.

8. Regarding these three last tracts reference has been made to the Settlement Department; and it is not yet known whether all the land or how much of it will be available.

9. As regards the demarcation of the Toplah Sâl forests, after careful personal examination I have come to the conclusion that nothing can possibly be effected with advantage till some sort of a map of the locality can be obtained, as the succession of long belts of Sal, interspersed with glades of grass, is perfectly bewildering to the mind, and renders selection quite impossible; for it is quite impossible to know, without a survey, where they begin, where they

and, their area, or anything definite about them. If possible I would hope that a portion of one of the Revenue Survey parties may be detached to map the Sâl tracts at once, or in the event of this not being possible, that the Forest Department may be permitted to entertain a small establishment specially for their survey. In the meanwhile I have obtained from all the district authorities, as well as from the Commissioners of both the Nagpore and Jubbulpore Divisions, a promise that no land whatever shall be sold hereafter in Mundla or Balaghat, where the Sâl forests are found, without a reference being first made to the Forest Department. This I have further submitted for the approval and ratification of the Officiating Chief Commissioner. As soon as the maps are prepared no delay whatever should take place in demarcating the forests and handing them over permanently to the Forest Department.

Sub heads,—2, Conservation

10. In respect to conservation Lieutenant Douglas has shown no less zeal than he has in the matter of demarcation. For protection from fire the western portion of Jugmundul and the Sowareegogurh Reserve (the united area of which is about 53 square miles) have been selected, and an extra establishment of 168 men at a monthly cost of 830 rupees has been entertained for the last 3½ months before the rains. Broad paths have also been cleared of grass, and all inflammable matter, wherever any footpath which cannot be entirely closed passes through the forest; and the grass has been burnt to a considerable distance all round the forest to the outside of the boundary. Up to the present date no fires have taken place, and I confidently expect that we may hope for success this year; and if only this can be continued for three or four years in succession, there is every reason to believe that the grass will decrease very materially in quantity and that a very much smaller protective establishment will suffice to guard against fires.

11. In addition to this, the eastern portion of Jugmundul (the old Mircheekona Reserve) and the Bijiragogurh forests, were selected for partial burning of the grass while it was green. I examined the result of this myself. Certainly seedlings, though scorched, generally escaped without total destruction by the fire; but in most instances they were materially damaged. There is no fear of fire being repeated here again during the same year; but as the grass will spring up as strong as ever, this system of partial burning can in no way be compared for good effects to the total exclusion of fires, if the latter be possible. I may add that the boundaries are all regularly and constantly patrolled and reports are submitted of the same.

12. The following is a memo. of the sums expended on works specially connected with conservation in this division during the past year :—

Protection of the Reserves from fire	Rs.	1,829	11	6
Clearing paths and dividing the forests off into blocks	„	822	13	0
Pruning, thinning, clearing creepers and other works of general improvement	„	309	14	0
Total...	Rs.	2,962	6	6

13. In the matter of plantations I regret to say that in spite of every effort on the part of Mr. Grahame only some 350 seeds germinated out of upwards of 20 maunds of seed sown last year in the nursery beds in the Borneyr plantation, and treated on exactly the same principles as those followed out at Nellambore. This year the seed has been sown a month earlier, and it is hoped that the results will be more successful. Nevertheless Mr. Grahame, when he found that he had no chance of rearing his own seedlings, went out

into the jungles, from whence he took and planted 33,519 seedlings in pits in the plantation. Of these, 16,827 are now alive, and are sufficiently established to give good hopes that they will survive the present hot season In Gurrakota a number of seedlings have also been planted out, while those of former years after remaining in a stunted form, for from 2 to 5 years, last year, perhaps owing to the heavy rain-fall, took a sudden upward shoot, and are now many of them from 7 to 8 feet high.

14. I begin to have great doubts if we shall not be obliged to have recourse to irrigation on a large scale if it is desired to extend the plantation system in these Provinces. It is impossible to give sufficient water by bullocks. and the young trees do not seem to thrive here without it in the manner they do on the Malabar Coast. Indeed, five year old seedlings here are barely equal (even under favourable conditions) to those in the one year old plantations there. I believe the best plan will be to form large tanks in places where they can be made at a reasonable cost, and form our plantations below them. For if water has to be brought on bullocks and every tree hand-watered, it is quite evident that any extended plantation scheme is quite impossible. The Sheshum and Toon seem both to thrive better than teak, and the Chinese tallow tree seems to come on admirably. But the cork oaks sent out from Europe seem to be an entire failure, and seemed all either dead or dying when I saw them. These latter, however, were not here, but under charge of the late Mr. Morrison, at Chikulda.

15. The amount expended on plantations up to the present date has been Rs. 4,227-10-2, of which Rs 649-14 9 were expended during the previous years We must endeavour another year to obtain more satisfactory results for so considerable an outlay. The rate per acre will be found nearly the same as at Nellambore, but the result alas! how different.

16. Dhya cultivation has, of course, been long since stopped in the Reserves, but it is practised in one or two places in the hills along the Halon and Bormeyr, and all along the Ghat range up to Ummurkuntuk in the Sal forests. where tribes of Bygahs still make their living by it In all the Toplah forest it has now been put down by us, but I do not think it ever flourished much there or these noble forests would never have escaped as they have done. Continual efforts are being made both by the Civil Officers and the Forest Department to confine the Bygahs to certain localities, and in time the practice will, I hope, be stamped out. Indeed, in some places the Bygahs have been already persuaded to commence plough cultivation. The Gonds have, I think, entirely discontinued to cut Dhyas almost everywhere.

17 But the mischievous practice of tapping the Sâl for resin is still much practised, and is exceedingly difficult to detect. The petty traders are the chief instigators of this mischief and pay well for the Ral. It is these people, and not the Bygahs and Gonds, who are the real mischief workers in the Sal forests ; but it is difficult to know how to reach them.

18. There can be no doubt, from inquiries which have been made, that the grass is often burned to facilitate the collection of the Mowah flowers, and that this is a frequent cause of jungle fires. Of course this can be prevented in the Reserves, but outside of them it would be impossible.

19. During the past year regular pruning and thinning operations have been carried out in Gurrakota: large clearances of old scrub have been made to

form fresh teak plantations; and the forest has been put into regular good order according to the plan I drew up when I last visited it, and which received the sanction of the Chief Commissioner.

20. In concluding this head, I may state that the present conservancy establishment of this Division is on a thoroughly effective footing, and seems sufficient. The men are well instructed in their work, and I am glad to say that the establishment under Mr. Grahame appeared exceedingly well up in their work. Two young men (Mahomedans) of respectable family and good education have also been placed under Mr. Grahame for instruction, and I am bound to say with every prospect of good results. I trust that they will prove the first of a useful class who may be trained for forest work in this manner, and I would earnestly direct attention to the advisability of endeavouring to obtain others of the same sort. When fit to take up a responsible position, care should be taken that an early opportunity is taken of providing suitably for them.

21. During the past year 49 breaches of the Forest Rules have been noticed in this Division, all except five of which were in the Unreserved forests. In 45 cases the parties were sent before a Magistrate and awarded some small punishment or else were admonished and discharged.

Sub-Heads.—3. Selection of trees felled, and yield of forests.

22. No trees have been felled in the Reserved forests during the past year, except such as were previously killed by girdling, or old and decayed trees.

Of the above were felled—

34 from Chirkee Chapa on the Bormeyr,
500 in the Jugmundul forest,
140 at Toplah,
2,522 in Gurrakota,

all of which were crooked, hollow, and unpromising trees; of these 744 were sold for charcoal, and the remainder made over to the Executive Engineer, Saugor, for small works.

23. Besides the above, 1,432 logs of old timber have been collected and brought out of the Mundla forests into the Depots.

24. 2,478 logs were floated from the Depots in Mundla to the Goareeghat Depot during the past year, of which 75 were lost, and 325 were otherwise accounted for. The balance, 2,078 logs, reached Goareeghat in safety.

25. In addition to the above, 154 Sâl sleepers were prepared and floated on bamboo or teak rafts to Jubbulpore. So successful has been the experiment as to cost (as it is quite certain that the cost of each sleeper will not exceed Rs. 4 at Jubbulpore), that I have directed Lieutenant Douglas to commence the preparation of 10,000 sleepers at once at Toplah, as part of the 50,000 which the Forest Department have engaged to deliver to the Great Indian Peninsula Railway at Rs. 5-4-0 each. This will relieve the work in the Delakaree Sâl forests near Puchmurree in the Western Division, where there seems to be great difficulty in organizing working parties, on account of sickness and other reasons. I think that very great credit attaches both to Lieutenant Douglas and Shaik Mohey-ool-deen for the energy and intelligence that has been displayed by them in successfully overcoming all the difficulties connected with floating a heavy timber like Sâl down so difficult a river as the Nerbudda, the results of which will be so important to the Forest Department and Public works in opening out and making available for our use the timber of the Toplah Sâl forests.

26. In addition to the above by order of the late Chief Commissioner the Forest Department have undertaken the delivery of about 9,000 cubic feet of Sâl timber which was previously sold to the Department Public Works at Jubbulpore in the Toplah forests.

The Department Public Works' officers first undertook to deliver this timber at Jubbulpore themselves, and being unable to do so, the task devolved on the Forest Department. With a view to the delivery of this and other timber a road has been already opened by Lieutenant Douglas from the forests to join the Rajadhar and Mundla Road, at a cost of Rs. 1,856-8-0. The District Road was also carried out from the Halon river to Mundla by Lieutenant Douglas, for which Rs. 4,000 were received from the local Road Fund, and I may here state that carts now begin to go regularly from the plains of Raepore to Mundla by this road. Lieutenant Douglas states that he counted 52 carts laden with cotton in one convoy proceeding along it. 42 carts have been built for conveying the timber from the forests to Mundla. Up to the present time the whole of the Department Public Works' timber (523 logs in all) has been squared and collected at one Depôt from whence the carts can fetch it. 100 empty casks have also been purchased from the Commissariat to float the logs on bamboo rafts from Mundla to Jubbulpore; 50 logs have been already carted to Mundla and 16 logs have been floated to Jubbulpore. The delivery of the rest may be looked for during the ensuing season. The cost of that already taken down has not exceeded Rs. 2 4 6 per cubic foot at Jubbulpore without including superintendence. As the Department Public Works have hitherto been paying contractors Rs. 3 per cubic foot for squared Sal from the Rewah territory, this result may be looked on as satisfactory. Owing to the timber having been previously written off our books, and the work of removal having been taken up on a special order, the funds being furnished by the Public Works Department, the whole of the above work unfortunately does not appear on the returns of the department and therefore we get no proper credit for it. It is not on that account a less important service.

27. In all (excluding the Toplah Sal) 3,744 fresh logs, containing 15,641 cubic feet have been brought on the Depôts during the past season, and 21,816 cubic feet have been disposed of for Rs. 27,537-8-1 to the Department Public Works, Railways, and other parties.

28. Another useful work which Lieutenant Douglas has carried out during the past year is the blasting of the rocks in the bed of the Motiaree river, to enable logs to be floated from the Jugmundul forest down to Mundla. Rs. 410 have been expended on this operation, and for this sum a clear passage has now been made by which logs will easily pass down the stream during the monsoon.

29. As shown in Form 25, the amount of stock at the end of the year is 8,490 pieces, containing 44,103 cubic feet, valued at Rs. 42,285-2-0. This is a very low figure, as the estimated value has been reduced largely on account of the late agreement sanctioned with the Public Works Department to price the wood at 8 annas per cubic foot in addition to cost price at the Depôts. In case of inferior timber this again has been largely reduced as there is an enormous stock of indifferent wood still in the hands of private owners which was obtained by them before the Forest Department was organized at Jubbulpore.

30 *III.—Unreserved Forests,*

and

IV.—Financial.

will be treated in the General Review.

V.—General.

31. Lieutenant Douglas has now held charge of this Division for six years since its formation, and as he is now about to proceed to Europe on a well earned furlough with a view to recruit his health, which though still suffi-

iently good, has been considerably shaken by repeated attacks of fever, as well as to improve himself in his knowledge of forestry by visiting the Continental forests, I feel it my duty to state for the information of the Chief Commissioner and of the Government of India, that after a careful inspection of this Division during the past season, I formed the highest possible opinion of the excellent condition which Lieutenant Douglas has brought it into. It may be fairly said that some real progress in forest work has been made here. The forests have been thoroughly demarcated, a good and cheap system of working has been fairly instituted, and careful attention has been paid to the instruction and training of Subordinates in forestry. This has been all brought about by a patient and unremitting attention on the part of Lieutenant Douglas to details of work in all its branches. He has also a kindly way of dealing with his Subordinates which makes them work well and heartily with him, and certainly attaches them to him in a remarkable manner. I do not know what more I can say in Lieutenant Douglas' praise, but I am quite sure that all I do say is well deserved. Moreover, in general knowledge of forestry, and larger ideas of general management I have been pleased to see very great progress in Lieutenant Douglas' work during the last year or two, and I feel sure that if hereafter he comes to be promoted to a larger charge, he will be in every respect competent to carry out far more complicated duties than any he has hitherto had to perform, in a thoroughly efficient manner.

32. But a large share of praise for the excellent condition which this division is in, is due first to Darogah Shaik Mohey ool-deen; and after him, to the other Subordinates in whose hands the carrying out of the details of executive work of necessity for the most part rested. If hereafter, admission into the higher branches of the forest establishment is accorded to the Native Subordinates, I would strongly point out Shaik Mohey-ool-deen as in every respect fit for such promotion, and I would very gladly see him promoted to be a 2nd Class Assistant Conservator if opportunity offers for making such an appointment.

33. The work done in the plantation by Mr. Grahame appears to be judiciously carried on. He gets on well also with his Native Subordinates, and he has begun to pick up a knowledge of the language. As he gains more experience of the country, he will I hope every day become a more useful member of the department. His health has been generally good, but he suffered a good deal from fever in the rains.

34. In my previous report on the Reserves, I fully entered into the question of the works which require to be taken in hand here by Mr. Jacob, who succeeds Lieutenant Douglas in charge of the division. They may be stated briefly as follows:—

1*st*,—The mapping of the Sal forests with a view to their demarcation.

2*nd*,—The utilization of the Sal timber and the means to be adopted of floating it.

3*rd*,—The completion of the reserve demarcation in Sigrambore, the Gour river, Duldulla, and Keoladhur,

4*th*,—The works of conservancy required in the Reserves which have been demarcated.

I have every confidence that Mr. Jacob will carry all these works out with energy and judgment.

Central Division.

35. This Division comprises the Seonee, Chindwara, and Bhundara districts, with a small portion of the north of Nagpore. It contains the great Saut poora reserve, together with that in Deogurh. It has been held since November last by Mr. Cox, who was removed here when the Nimar Division was broken up.

36. Since Mr. Cox's arrival he has been fully occupied in clearing the boundary of the great reserve and putting up the pillars; as this boundary cannot be less than 200 miles in length it has afforded him ample work, and he has satisfied me well by the attention he has paid to it. In addition to this, the reserve has been divided off into large blocks to facilitate the further sub-division of it into smaller tracts for rotation cutting, and a sketch map of the reserve is forwarded with this report as ordered; but it was not found possible to complete it for this year on the scale ordered, as it would have required a survey which it would have been absolutely impossible to make with the means at my disposal. But Major Oakes' Revenue Survey party has now completed the mapping of the whole eastern corner this season, and the remainder will be completed next year, when a correct map of the whole reserve on a scale of 4 inches to the mile will be available, on which the forest operations can at any time be distinctly delineated.

37 As the Chief Commissioner in conformity with the wishes of His Excellency the Viceroy in Council wishes to make previous enquiries as to the effect the giving up of so large a tract for strict conservancy would be likely to have on the convenience of the population generally, and especially on the wants of the cattle (for not only the cattle of this district, but of the whole richly cultivated tract of country between the ghat range and the river Wurdah, which separates the Central Provinces from the country of His Highness the Nizam, depends almost entirely on the ghat forests for grazing), it has not been possible, as yet, to give effect to the orders of the Government of India as to forest management within the reserve limits, further than making the necessary demarcations with a view to it. On the grazing question I would observe that it is here that the cattle are sent to breed when they are not wanted for the plough in the rains, while in the hot season they have to go further, even to Balaghat and Mundla. In the villages too, near this tract, are found the owners of the large herds of buffaloes from which the cities of Nagpore and Kamptee are supplied with ghee. There can be no doubt, that the cattle question is of the most important order, as the stability of the very land revenue itself depends on it, and the whole subject requires handling most tenderly. At the same time the Chief Commissioner is, I am sure, fully aware that a high state of forest reproduction cannot be looked for if the cattle are allowed to roam promiscuously over the whole place, and I think that with caution it will be quite possible to reserve certain tracts for the reproduction of wood, without injury to the interests of the owners of cattle, which for the most part require to remain near the rivers and in places where water is abundant. But the subject can only properly be treated in detail, and the Assistant Conservator should go over the ground, bit by bit, selecting such places as it may seem desirable to shut the cattle out for a while; and an Officer should be deputed by the Civil authorities to aid him in the selection, and to watch the interests of the cattle owning population. It would be well also that the Conservator himself should inspect the tract, and settle the preliminaries on which the selections should be made. I may state that my opinion is founded on a long and intimate acquaintance with the Seonee district, as also from recent close inquiry from persons likely to be able to form an opinion and from some of the principal cattle owners themselves. I think also that it perhaps, would be politic to fix the south boundary of the reserve in Bewgurh, a few miles north of where it is at present

drawn. Some portion of the reserve would be sacrificed, but many complications would be avoided, as at present there are about nine blocks of private property within the reserved limits which cause great trouble, and which afford every opportunity for pilfering from Government forests, and lead to continual disputes and much bad feeling between the forest officials and the people.

38. The marking off of the Deogurh reserve west of the Chindwara road has not been yet quite completed, owing to the waste land lists not having been received from the Settlement department, but only about three miles of boundary remains to be done, and I hope next year that it will without fail be finished.

39. The teak planted out last year in Sonawanee, (about two acres) is reported by Mr. Cox as doing well. I am much pleased to see that Mr. Cox has taken much interest in the plantation work, and has made arrangements for planting out a much larger area this season, as also for irrigating it, which I look on as a very important point in the operation. The amount spent during the past year in this division under Head A. VI,—Plantations, has been Rs. 205-3-6, and under forest improvement, including boundaries, Rs. 732-5-6.

40. There have been 55 cases of breaches of Forest rules in this division during the past year, and 31 convictions for the same.

41. On the whole, I think that the Reserve is in fair order. The growth of the young teak, and the progress it has made since protection was afforded it, is certainly remarkable. It is now necessary that the orders for rotation cutting for fuel and small timber be strictly carried out as soon as possible, ; and I am sure that if this is done with care, the future wants of the thickly populated tract which lies to the south of it may be provided for without causing any undue present inconvenience to the people.

42. An establishment was entertained for keeping out fires from the fine tract of young teak in the neighbourhood of the Korye pass; but the large working parties on the road, who were obliged to have their huts within the limits of the Reserve, partially rendered these efforts nugatory, and a portion of the grass was destroyed before the end of April. In conformity with the orders of the Government of India as conveyed in Public Works Department letter No. 323F. of 30th September 1867, it is proposed to make the following arrangements for working the Reserve next year, subject to the sanction of the Chief Commissioner. The eastern portion of the Reserve has been divided into four portions as follows, commencing from the east :—

1*st*.—The Sonawanee block, extending from the Kanjaree ghat road, leading down towards Lallburra to Jam and Nugjhir.

2*nd*.—The Kuttunghee block, extending from Nugjhir to Kuttunghee and Seonee road.

3*rd*.—The Durassee block, extending from the Kuttunghee road to the path between Kappa and Chunderpore.

4*th*.—The Korye block, extending from the latter to the Great Northern Road.

43. In each of these blocks two sub-divisions of moderate size, not exceeding one-tenth of the whole, will be temporarily demarcated as under for next year's cutting :—

In the Sonawanee blocks, at the Nakas of Bagapanee, Keirmara, and Gurkhaira; and 2ndly, at Chandagondee, Moonmara, and Kuttungjhiree.

In the Kuttunghee block, at the Nakas of Tikaree and Chirchira ; and 2ndly, at Nahleesurra and Korma.

In the Durassee forest, at Surekha and Doondeewara; and 2ndly at Sukala.

In the Korye block, at Rookur; and 2ndly, at Pindrai and Chunderpore.

44. These sub-divisions will be marked off by temporary marks, such as whitened pots placed on the top of posts. The collection of the revenue in each of these chucks will be put up to auction for next year ; but it must be closely watched, and if any attempt is made to evade the Forest rules on the part of the lessees, arrangements must be made for collecting the reveuue *Kham* another year. In these sub-divisions, bamboos, grass and fuel, will be permitted to be cut. But timber of the reserved sorts will only be cut after being marked as directed; and the cutting of Khair will be interdicted. The portion of the Reserve west of the Great Northern Road will be closed entirely; but the collection of the right to collect Mowah and jungle fruits will be disposed of as formerly. I do not expect, however, that under the new regulations the Reserve will give a revenue of above 5,000 rupees, against one of 17,500 rupees during the past year. The grazing must be allowed to go on until the arrangements for marking off the chucks from which the cattle will be excluded are completed.

45. In addition to the above arrangements I have ordered the Assistant Conservator at once to take up and mark with heaps of stones, to be hereafter replaced by small masonry platforms, *all the Stations of the Reveuue Survey which fall within the Reserve*, as also to make arrangements to have the internal demarcation lines of the Survey kept clear, so far as the Survey operations have been completed. And next season I have directed a forest Subordinate to be detailed to accompany Major Oakes' parties in order to take up and mark the Survey Stations as soon as they are fixed. This being done it will, with the aid of the map, be possible at once to mark off the exact portion of forest, even to the nearest acre, in which it is proposed to carry on operations during any year.

46. *III.—Unreserved Forests,*

and

IV.—Financial,

will be treated in the General Review.

V.—General.

47. I am in every way satisfied with the attention paid by Mr Cox to his work during the past year. The Darogah, Mahomed Wahid, has also been, as he always is, a most useful Forest officer, and has worked well, especially in getting in the revenue of the Reserve.

EASTERN DIVISION.

48. The Eastern Division comprises the district of Raepore, Belaspore, and Sumbulpore, with the Reserved forests contained in them and the leased teak forest of Panabaras. It has been held in charge by Mr. Jacob during the past year.

1. Examination and Survey of forest tracts imperfectly known.

49. While superintending the works in the Panabaras forest, Mr. Jacob took every available opportunity of exploring the forests in the Konkair Zemin-

daree which lies between the Raepore district and Bustar. Also the small States of Manpore and Lohara and the pergunnah of Sunjaree, which are adjacent to Panabaras round the head waters of the Mahanuddee. Mr. Jacob describes Konkair as a very flourishing State, the country being well-wooded, villages plentiful, and regular cultivation abundant; while the inhabitants seem well off and comfortable, possessing large herds of cattle of a good breed, and displaying less migratory habits than the Gonds even near more civilized localities. In fact, he states that they are in every way a contrast to those seen in the wretched poverty-stricken State of Panabaras, which is next to it. In all parts also of the Konkair territory near the villages, fine old groves of mango and tamarind trees are met with. The only teak found in this territory by Mr. Jacob was along the Sendree nullah, which rises in the large block of hills near Darwa in Panabaras, and is evidenly a continuation to the eastward of the Darwa forest.

50. This forest extends for about seven miles down the Sendree nullah, and is confined to its immediate vicinity; but every tree above 4 feet in girth has been cut down since last rains,—no doubt to complete a contract which was given by the Public Works Department at Kamptee for a thousand logs to a Native timber dealer there.

51. I do not think that the Officers of the Public Works Department are quite aware of the amount of oppression which the fulfilment of these contracts causes among the people, to say nothing of the damage done to the forests. They are worked through the Zemindars themselves, with whom the Contractor makes a bargain to have the trees felled, logged, and delivered on cart roads for from 2½ to 4 or 5 rupees per tree. The whole of the work is then done "by begarree"—the Gonds who have to do it *never receiving one pice from the Zemindar in recompense for their labour*. Although then the Forest Department pays a liberal royalty per cubic foot to the Zemindars for the timber which we take from the leased forests, it is a matter of no wonder that Zemindars, taught by the Contractors, are for the most part in heart opposed to our proceedings, however much the people themselves are in our favour (and Mr Jacob speaks strongly of the delight with which the Panabaras people welcomed him back on his return to the forest last season). For it is evident that not only do the Zemindars get as much or nearly so from the Contractors as they do from us, but the very fact of our paying the people for their labour spoils them, so far as the Zemindar is concerned, as they become independent and less at his beck and call to work for him for nothing. In fact, I believe they very soon would refuse to do so. This the Zemindars do not like at all, and this accounts for the power which men like Bugwandoss of Hyderabad get over the petty Chiefs in these out of the way localities.

52. But again the Forest Department do not work on a fair footing with the Contractors, for it is evident that if 4 annas a day is barely sufficient to get the people to work well for us, while the Zemindars can get the work done for nothing by using pressure, that it is very hard for the Forest Department to compete as regards rates with Contractors. The consequence is that Public Works officers naturally favour the latter, who certainly bring the wood to their doors at what seems a moderate price without giving them any trouble.

53. In these remarks, however, I especially refer to the Panabaras Forest and that of Delakaree in Chindwara, where although we have a footing the Chiefs never have given the smallest practical assistance. In Aheree the widow of the late Menga Rao, who is now Thakorain, appears in every way liberal and far sighted with reference to her valuable forests. But Menga Rao himself was a superior man to most of his class.

54. I cannot then myself recognize the advantage to Government from this system, as by it Government is keeping up a Forest Department whose services are not made available to them. Last season before the rains, with great trouble, Captain Jarrett brought about eighty fine logs of squared teak and Sissoo from Aheree to Nagpore; but the Department Public Works could not take any of them, although they were offered at the rate of Rs. 2-4-0 per cubic foot, which was eight annas less than the price then being paid to the Contractors, because the contract for 1,000 logs above referred to, would place so much timber on their hands. It is true that the wood brought by Captain Jarrett was no loss to the Forest Department, for it was taken at once, partly by the Arsenal, and partly by a private individual ; but in a measure, the benefit of the operation was lost to Government, and I was discouraged from bringing up any more this season, without having previous orders for it.

55. But to return from this digression: besides the teak in Konkair along the Sendree, Mr. Jacob found a considerable number of large pollarded trees scattered along the Ambakurra Nuddee,—another river rising in the same Hills as the Sendree,—but the trees are old and not apparently of much use.

56. In Lohara there is a small quantity of stunted teak of no great value, but in the Sunjaree pergunnah there is (about 5 miles south-west from Sunjaree itself) a patch of good teak about 1½ miles long, and 200 to 300 yards broad. This has been reserved by the Settlement Officer, and I should recommend that it be at once taken up as a Reserve by the Forest Department

II.—Reserved Forests.

Sub-head—1, Demarcation and boundary of Forests

57. The survey of the Panabaras leased forest is now proceeding with vigour; but up to 1st March, owing to the extreme unhealthiness of the jungle, Mr. Jacob reports that he could not calculate on a single man employed there being available for three consecutive days' work. Nevertheless up to the present time a large proportion of the measurements and rough sketching have been completed, and it is hoped that the work will be finished by the end of the season.

58. The masonry pillars round the Kumturra Nullah Reserve have been completed; and the demarcation of the Lown Forest is now going on as directed by the Government of India in the orders on the last annual Forest Report. This last tract, however, contains no good timber, and the amount of small jungle in the neighbouring Zemindaree Forests available for firewood, which the people will have recourse to as soon as any pressure is put on here, prevents me from expecting that it will be of much use.

59. Owing to the necessity for his remaining to superintend the timber works and survey in Panabaras; I ordered Mr. Jacob not to proceed during the present season to arrange with the Deoree Zemindar for an extension of the Kumturra Nullah Forest, nor to proceed to demarcate a Reserved Forest in Sohawa. In this arrangement the Cheif Commissioner acquiesed, but I should suggest that as the Revenue Survey will proceed into Sohawa next season, that previous to their going there, Mr. Jacob should go down and take up such portions of the Sâl bearing tract as it may be advisable to form into a Government forest.

60 As regards plantation work in this Division, the seed which was put down last year did not germinate at all, the season being too far advanced. But for the present season Mr. Jacob reports as follows :—

" As I previously reported, the Hathibaree tract presents many very favourable features for reproduction, and accordingly operations are now in good progress

to extend the area of the indigenous teak-bearing tract by planting. The seed-beds are already sown and about seven acres have been enclosed to receive the plants when fit to put out. An enclosure has been necessary on account of the number of wild buffaloes in the jungle, as I fear their hoof marks in the rains would be found very injurious.

"I have supplied a stock of well selected seed from Panabaras, which is sown separately with the view of observing if any advantage will be obtained from the change, as the character of the timber, the soil, and the climate, are all very different."

61. The amount spent up to 31st March in the Eastern Division under head A VI—Plantations, has been Rs. 150-10-6, and Rs 125-8-0 under head A VII—Forest improvements, chiefly on account of completing the works in the Kumturra Nullah forest. A considerable additional sum will, however, be spent before the end of the season on plantations. The small establishment which it is possible to allow for this division puts much forest work out of the question, as it is necessary to put the strength of the department into the nearer and more exposed forests.

62. Dhya does not exist to an injurious extent in the Eastern forests, the system of hill burning being almost unknown, and the cultivation being confined mostly to the formation of rice fields in the plains. But the tapping and killing of the sâl trees for Bal exists to a serious degree, is very mischievous in its effects, and is very difficult to prevent, especially in the Zemindaree forests.

63. On this head, I copy from Mr. Jacob's report:—

Sub-head—3rd, Felling operations.

"The felling operations have been confined to the leased forests in Panabaras. As they were only preliminary and commenced without any map or estimate of the forests, no regular system was adopted beyond the careful selection of sound logs above 4 feet girth; there need be no apprehension as to an ample supply for seed remaining.

"Until the timber is removed from the forest completely, I can only furnish an estimate by average, as follows:—

"There were 365 logs felled, the approximate contents of which I calculate at cubic feet 16,462 : deduct 20 per cent for being hollow and otherwise defective, 2,663 ;—balance in round numbers 13,800. From this number 46 logs have been placed in depot at Berampooree, containing by actual measurement cubic feet 1,049. The total expenditure on the works up to 31st March is Rs. 2,954 9 0
Add to which royalty at 3 per cent on the 1,049 feet of timber removed ,, 196 11 0

Total Rs. 3,151 4 0

gives a total of Rs. 3,151-4-0 as the actual amount to debit, with 1,049 cubic feet of timber to credit. This would at first sight seem rather startling, and convey the idea that the timber would average a little over Rs. 3 per foot; however, on claiming credit for the amount expended on removal from the forests to a position where the timber can be loaded, which was most expensive, I consider myself safe in calculating the price in depot not to exceed Rs. 2 per cubic foot. This expenditure includes establishment, the construction of a house and well, labour, and cart hire. All the timber except about 30 logs is now in a position where carts can be laden with it, and the expense to be incurred in future will but little exceed the cost of loading and actual carriage.

"I would also add that so far as my experience goes, which is limited to this season's work, I consider the employment of an elephant on timber work and those large swing carts far from profitable.

"Were it not for the non-fulfilment of a contract for carts into which I entered at Raepore, a much larger quantity of timber would have been removed; but instead of supplying 60 carts as agreed upon, the Contractor only furnished me with 29, and even that number has now fallen off to 17,—so that I have ordered the man in charge not to despatch any more timber to depot, but employ all the carts and the elephant in collecting the timber in the open plain, where it will be safe from fire and can be despatched without requiring my constant supervision.

"In addition to the work at Panabaras, I have had, as you directed, the greater part of the sâl timber felled last season close to Kumturra in Kowrea removed from the forest and collected in the open, where there will be no risk of fire. We can scarcely dispose of this timber before coming to terms with the Zemindar; but yet it was worth removal to secure it from damage. This was effected at comparatively small expense; and although there is just now no local demand for it, I expect it will eventually realise its full value, as the teak in Deoree which lately supplied the Raepore market at far under its value, is either exhausted or the owner has stopped cutting it in hopes of enhanced prices.

"The timber collected consists of 239	logs	containing cubic feet	4,780
585	„	cut into sleeper lengths „	6,116
		Total ...	10,896

at a total cost to end of March of Rs. 945-4-0, leaving about 100 more in the forest in course of removal."

In corroboration of Mr. Jacob's statement, I fear that until we possess a tolerably strong cart establishment belonging to the Forest Department we shall never in any Division be able to rely on getting out our timber from the forests in a regular manner. At present there is ample work for cart people all over the country, and as these men dislike especially to leave the civilised parts of the country, and to come and work in the forests, it seems impossible, even by the offer of high rates of pay, to induce them to do so. Even if they come, as soon as work is heard of elsewhere off they go at once.

64. *III.—Unreserved Forests*

and

IV.—Financial.

will be treated in the General Review.

V.—General.

65. Considering that when Mr. Jacob went to this Division in the middle of last season nothing had been done, and that a very small establishment was given him, I am highly pleased with the amount of sound progress he has effected. The work which he has got through in the demarcation of the Kumturra Nullah and Lown forests and the commencement of a plantation in Huthibaree, together with the survey demarcation of Panabaras and the commencement of timber operations in that distant locality under very adverse circumstances, show a high amount of zeal and useful work. In addition to this, a large amount of fresh exploration work has been done by him in Konkair and

the adjoining Zemindarees which lie to the north and north-west of Bustar. All this work it must be remembered had to be carried out in some of the most unhealthy jungles in these Provinces, far removed from aid in case of sickness and with not a European of any sort near him for months together. Mr. Jacob has been hitherto somewhat unfortunate in having to carry out works, which however necessary, do not make much show, especially in a revenue point of view. But his services have not been less valuable on this account and he well merits my highest commendations. Since he has been removed to the Northern Division, owing to Lieutenant Douglas going away on furlough, he will have a more pleasant as well as more important charge, and one which I am sure he will do the fullest credit to. Mr. Jacob speaks in a satisfactory manner of his Darogah, Lall Homed.

Western Division.

66. This important Division comprises the districts of Baitool, Hoshungabad, and Nimar, and the reserved forests contained in them, also the Delakaree forest in Chindwara. It has remained in charge of Lieutenant Doveton during the past year.

I.—Survey and examination of forest tracts little known.

67. Lieutenant Doveton has been entirely taken up during the past year by detail work which ought to have been carried out by subordinates; but which owing to the entire failure of health on the part of Mahomed Padsha, who was the right-hand man of this Division, fell on Lieutenant Doveton himself. In addition to this the Forest Darogah of the old Hoshungabad Division was tried for embezzlement and sentenced to imprisonment at the commencement of this working season, while at the same time it became necessary to draft another Darogah to Berar. There was necessarily some delay in obtaining qualified men to fill all these three places, and when they came they were for some time useless, owing to want of local knowledge. So in fact for nearly the whole season Lieutenant Doveton was, from one cause or other, positively without any assistance, except one Darogah in the Boree forest, and one on the sleeper work in Delakaree. The additional establishments since sanctioned will, I hope, prevent in some measure this happening again; but last year there was not a single man available elsewhere to send him when Mahomed Padsha broke down, and the consequence has been that the examinations of the forests in the upper Towah valley, which Lieutenant Doveton had intended to make, as well as many other desirable works, have been necessarily deferred for the present.

II.—Reserved Forests.

Sub-heads—1st, Demarcation and boundary of forests.

68. A list of the Reserved forests with full particulars is added to this report: nearly the whole of them, except Rajaboraree, would have been demarcated, and the masonry pillars erected before this report was sent in, but for the unfortunate break down in the establishment above referred to. The line cutting is however now in progress, and will be completed in all the Reserves except Kutungee before the monsoon, by which time also it is expected that the whole of the masonry pillars round the Sowleegurh and Bowergurh forests will be erected.

69. A large portion of Lieutenant Doveton's time was also taken up by an exceedingly intricate boundary dispute in Rajaboraree, as the owner of a small free-hold estate, which comes within the forest limits, had managed to advance his boundary in such a way as to include about 20,000 acres of Government forest land. The Revenue Subordinates who were at first sent down to Lieute-

nant Doveton by the Deputy Commissioner entirely failed to adjust the difficulty, and it was not until the Assistant Commissioner of Hurdah himself was ordered to the spot that the matter was settled. It was a matter of much importance, as the pilfering of Government wood from the forest had gone on to a terrible extent, and there was very great difficulty in checking it. The time wasted there was much to be regretted, but it was absolutely necessary that the matter should be finally settled. I trust that there is nothing now to interfere with the completion of all the boundaries in this division.

Sub-Heads—2nd, Conservation.

70. The Establishment of Darogahs for this Division is now on a sufficient footing; but most of the men require to learn their work. I strongly would urge the necessity of getting hold of educated young men of respectable family and connections, and putting them into training, either under good Darogahs in the forests, or else under the European Foresters on the plantations, as has been commenced by Lieutenant Douglas, and their pay might be charged to the works while they are learning their duty.

71. Two more European Foresters are urgently wanted, also one for charge of Boree Forest, and one to take up the plantation works, as Mr. Davidson is fully occupied with the Cinchonas at Puchmurree.

72. The protection of the Boree forest from fire has been continued now for the fourth year; but owing to Mahomed Padsha's breakdown, nothing could be done this year to keep out fires in the Baitool forests. Every effort shall be made another season to this end. The expenditure under this head has been Rs. 229 in the Boree forest during the past year. Lieutenant Doveton considers it absolutely indispensable, if fires are to be excluded from the Reserves, that some of the old forest roads should be closed. Perhaps in Baitool, where there is far more traffic than in Mundla, this may be required, but in the latter district this has not yet been found necessary. If the roads are not too numerous, the expense of clearing grass on both sides of them might be tried. If the fires are caused by mischief, stopping the roads will not prevent them if by accident clearing the paths of grass will probably suffice.

73. Paths are being cut to divide the Boree forest into blocks, and make it accessible in all parts. Now that the establishment is sufficiently strengthened the patrolling of the reserves will be regularly carried out.

74. About four acres of teak plantations have been made on the Machna; but Lieutenant Doveton reports that the young trees are not above six inches high, though they are at present all alive and doing well. They have been, however, regularly hand-watered. There are also a number of young trees, about 5,000, still in the nursery at Boree, which will be planted out this year. The seed beds have been prepared and sown much earlier this year, and it will remain to be seen whether or not the young seedlings will have come up in time to be planted out at the beginning of the rains which here, as well as in the Mundla plantations, was not the case last year.

75. I have lately submitted a full report regarding the reproduction of timber in the Reserves of this Division. Lieutenant Doveton writes as follows:—

"Regarding the reproduction of timber, the condition of the forests is better than I have hitherto believed. In the Boree forest where fires have been excluded for nearly four years, teak seedlings are to be found in considerable numbers where the nature of the jungle admits a sufficient amount of light to

induce the seeds to germinate. In the dense portions of the forest, however, I have not observed any seedlings, excepting those in old Dhyas which have shot up before the undergrowth, and many of these have been outtopped by the rapid-growing bamboo. In the other forests teak seedlings are to be found chiefly in open patches, though they are not so plentiful as in Boree, and they are generally more or less injured from jungle fires. Tinnus seems to propagate itself more rapidly than most trees : this I think is chiefly owing to the dense shadow that the tree gives from June to September, and which, where there are few trees together, kills the grass entirely, and thus renders the young trees safe from fire."

76. The Cinchona trees brought from Ootacamund by Mr. Davidson are doing well and look healthy. It is impossible to tell, however, until another year has passed how they will really thrive. But I regret to say that all Mr. Davidson's efforts have as yet entirely failed to get the seed to germinate. I am inclined to think the seed was bad, as a quantity which I brought myself and tried at Chickulda (in the Berar Hills) where the conditions are exactly similar, germinated readily, though the plants died afterwards from want of proper care. Some tea seed has also been sown at Puchmurree, and has come up, and the garden there is in excellent order.

77. Now that arrangements have been made to obtain land at Puchmurree for the Cinchonas, I hope to see the plantations pushed on. By the failure of the seed we have I fear lost one season; but as we shall gain experience with the plants we have got already, perhaps in the end this loss may be a gain to us, as our failures, if any, will be on a smaller scale. When, indeed, the Railway is completed I believe the advantages of this plateau will become much more widely known and appreciated than they are now; and I would offer a word of caution, that the land which is wanted for the Cinchonas may not be taken up for building houses upon, which could be equally well built elsewhere.

78. The following form will show the amount expended on plantation and conservancy during the past year in this Division, including the expenses connected with the introduction of the Cinchona.

Statement showing the detail of expenditure under A VI.—Plantation, and A VII.—Works for improvement of Forests.

	Head A VI.—Plantation.						Head A VII.—Works for improvement of Forests.											
	Amount expended on plantation.			Amount expended on seed beds and planting out fresh acres			Amount expended on cutting creepers.			Amount expended on protection of Reserves from fire.			Amount expended on cutting paths and dividing off into blocks Reserved Forest.			Miscellaneous works.		
	Rs.	A	P.	Rs.	A	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A	P.
For the former year .	881	1	1	227	5	6	178	10	0	12	0	0	630	3	3	104	11	0
For the year 1867-68.	3,008	12	2	2,215	9	4	1,071	1	11	233	2	0	600	10	9	..	..	..
Total ..	3,889	13	6	2,442	14	10	1,249	11	11	245	2	0	1,230	14	0	104	11	0

79 There have been twenty-one breaches of Forest Rules observed by the Forest Department Officers during the past year in the forests; prosecutions were made and three convictions obtained.

Sub-head—3rd. Felling and timber operations.

80. About 3,000 old trees which were deteriorating have been felled and logged during the past year. The leaving of a sufficient number of seed trees has been carefully guarded.

81. The stock account shows an out-turn for the year of 2,500 logs, containing 22,600 cubic feet; besides which 2,500 logs have been collected in Bowergurh, and 1,000 in Sowleegurh, which may be estimated at 30,000 cubic feet additional. This timber has not been brought on to stock, owing to Lieutenant Doveton not having a man available to measure up the logs.

82. Of timber sold, 4,700 cubic feet is brought to account, but an additional 4,700 cubic feet was on the road to Saugor at the close of the year for the Department Public Works; but its price must appear in next year's accounts. It has been so entirely impossible to obtain carts for forest work in the Nerbudda valley during the past season, owing to the heavy demand and high prices paid on the Railway works for carting stone to replace the wanting bridges, that Lieutenant Doveton could not possibly get the 50,000 cubic feet of timber away to Saugor as he promised. No blame can possibly attach to him for this. But I strongly advocate the building of a certain number of carts for the Department in each Division, to render us independent under all combinations of the cart-owners, who no doubt under any circumstances dislike exceedingly to come into the forests for work.

83. I regret to say that I cannot express myself satisfied at the result of the Dolakaree sleeper work,—only 5,000 sleepers had been turned out at the end of the year; besides which there are a few belonging to previous years. I am perfectly aware that the sawyers dislike the work exceedingly; and early in the season, when I was there twice myself, they had suffered severely from dysentery. I am quite sure that Lieutenant Doveton will do his best to make the work popular and to attract people to it. There has been great trouble in getting these sleepers carted to the line, as the cart-men demanded exorbitant rates; otherwise above Rs. 30,000 would have been added to the assets of this Division under this head for the past year, which however will all come into next year's accounts. An arrangement has at length been concluded for carting all the sleepers that are ready to the line at Rs. 1-4-0 per sleeper, before the rains. As the distance is only about 27 miles and the road by no means bad, the rates which cart-men now ask to induce them to come into the forest may be in some degree judged from this fact, as I myself at first considered an offer of 12 annas per sleeper ample.

84. I have lately submitted to the Chief Commissioner a long note on the heavy timber stock in this Division, and the best means of disposing of it. The stock now really exceeds 2 lakhs of cubic feet, some of which is of only indifferent quality and will speedily deteriorate. To effect the reduction of the stock the value of the smaller timber has also been reduced with the Chief Commissioner's sanction by fully one-half, while the price of the better descriptions (with the exception of the best) has been modified also. The stock is valued in the returns as under :—

Pieces under 8 cubic feet,	Rs.	0	8	0	per cubic foot.
Over 8 and under 14 cubic feet,	,,	1	4	0	,,
Over 14 and under 20 cubic feet	,,	1	12	0	,,
Over 20 cubic feet	,,	2	8	0	,,

I trust that most of the stock will be got rid of at the low rates now asked, as I am thoroughly convinced of the great evil of keeping heavy stocks of indifferent timber on hand. This does not apply *to first class timber*, of which I think a stock should always, if possible, be kept for delivery in a seasoned state to the public departments. It is often a great evil that seasoned timber is not procurable, as green timber comes to be used in works where it is very undesirable to place it.

85. As regards the supply of timber to the Public Works Department a new arrangement has been just entered into with them by which a separate bargain will be made between the Forest Officer and Executive Engineer on each separate transaction. I hope this will work satisfactorily to the Subordinates of both departments. I cannot myself sufficiently thank Major Pollard for the cordial support he always has given me, and for the hearty way in which he always impresses on his Officers the necessity of dealing liberally with our Department, and working heartily with us.

86. I have sanctioned Lieutenant Doveton striking off from the stock account 5,216 jungle-wood sleepers of different sorts of wood which were made in 1862-63, at the request of the late Chief Engineer of the Great Indian Peninsula Railway as an experiment to try the durability of various sorts of timber for sleepers. The late Agent, Captain Sherard Osborne, afterwards utterly refused to take these sleepers when the Board of Directors came to the decision that none but teak and sâl sleepers should be used. The reason assigned for not accepting them was that the Railway had already learned to their serious cost that jungle-wood sleepers would not answer; but as when Mr. Grahame wished for their preparation, this fact was not known I do not think the whole expense of the experiment should fairly have fallen on Government. After a long correspondence I could get no more out of the Agent or his successor, and I was obliged to drop the matter. The sleepers are now quite worthless.

87. *III.—Unreserved Forests*

and

IV.—Financial

will be treated in the General Review.

V.—General.

88 The high merits of Lieutenant Doveton as a Forest Officer, his great knowledge of the forests and all connected with them, as well as his personal industry, are so well known to Government, that I need add nothing here to what I have said before on this matter; and though the work done in this Division during the past year has been in some respects less than in previous years, yet it will be seen that it is solely due to the unfortunate breakdown in the Subordinate Establishment which threw the whole of the detail work of the Division on Lieutenant Doveton's hands.

Mr. Hicks has done capital hard work in the forests. He is very hardy, and with more practice will, I think, do excellent service in the Department.

Mr. Davidson is a steady young man, and has got a thorough knowledge of Cinchona cultivation. I do not think he is very clever; but he is steady and willing, and Lieutenant Doveton seems well satisfied with him

Darogah Mahomed Padsha has broken down entirely in health, and I have ordered him to be sent away for a year on sick certificate. Darogah Shaik Homed in the Boree forest has done excellent work, and is a first-rate Forest Officer well worthy of advancement. I was much pleased with what I saw of his work this year.

SOUTHERN DIVISION.

89 The Southern Division comprises the Chanda, Wurdah, Nagpore, and Bhundara districts, with charge of the Aheree teak forests. It has been held during the past year by Captain Jarrett, V.C.

Mr. Brereton has held the Survey as a separate charge.

1.—Examination and survey of forest tracts imperfectly known.

90. Under this head very important work has been done by Captain Jarrett during the past season, as further examination showed that the patch of teak which I found last year east of Tulwarra was only a portion of another large teak forest similar to that of Aheree. The following is Captain Jarrett's account of it:—

"On my arrival at Allapilly towards the end of February, I observed a high hill to the north-east of the village, and having a little time to spare, I determined to explore it. On examination I found that there was very fine teak on the east side of the hill contained in a strip of forest about two miles broad and extending in a south-easterly direction close by and beyond Tulwarra, altogether about twelve miles. A low ridge runs along its centre forming its backbone, gradually increasing in height until it culminates in the hill east of Tulwarra, and from which it as regularly slopes away south-eastwards. This ridge is separate from the hill which drew my attention in this direction. I encamped at the north end at a place called Mungaira, an abandoned Maoree village. Here the teak consists principally of 2nd and 3rd class trees with saplings in profusion; and as these saplings are springing up in places *where teak has not grown before*, I am convinced from observing a similar circumstance in the Aheree tract that the forest is extending itself to the north. The same kinds of trees are met with here as are found growing with teak in other forests, and like the teak are only half-grown. I made seven surveys at the north end in a circuit of about four miles conducted on the plot system, each plot measuring 50 × 50. Their average is as follows :—

$\frac{3}{4}$ 1st class trees
6 2nd class trees
10 3rd class trees

the saplings at the north end averaging 15 to each plot. This average became less as I approached to where the 2nd and 3rd class trees grew thickly. On the following day between Mungaira and Mirkulloo I made 13 more surveys on the same system."

"My reason for adopting this mode of survey in preference to the Linceor was that it was easier and more certain in its results for one person,—the Linceor survey requiring at least two persons to conduct it efficiently, the one to check the other. The average of this day's surveys was as follows :—

$\frac{3}{4}$ 1st class trees
8 2nd class trees
6 3rd class trees

"These Surveys were made through the forest and along its centre. During my examination I came upon bamboos growing in closely packed clumps about 8 or 10 feet apart, about which saplings grew very thickly, giving an average of about 16 to the plot. Here the ground was quite bare of grass and scarcely any other kind of tree was to be seen. I encamped to day at another abandoned Maoree village called Mirkulloo, on the east side of the forest. This is the village to which whilst encamped at Tulwarra last year you sent a couple of men on an elephant to obtain a supply of drinking water from a tank there. On the third day I marched and explored it on its west side in a southerly direction. The result of to day's surveys give the following average :—

2 1st class trees
8 2nd class trees
5 3rd class trees.

"I would point out that the 1st and 2nd class trees increased, and the 3rd class and saplings decreased, the further south I went. At this, the south end, the forest appears to be quite as old and on a par as to quality as the Bemarum tract, with as small a percentage of saplings, showing, as I think, that teak seed will not germinate in soil which has become exhausted in bringing large trees to maturity. Hence I believe that the success of the Nelambore plantations is to be attributed to the fact of seed being sown in soil in which teak has never grown. The trace of Bhugwan Doss' wasteful hand, or rather that of his Agents is, I regret to say, to be seen here quite as plainly as in the other forest, in the shape of squared logs almost destroyed by fire, half made boats, and three-fourths of the best part of a tree left to rot. As regards the soil of this forest I regret that I am not sufficiently acquainted with geology to be able to give it a name, but that which composes the younger half (north) of the forest is of a brown colour. The soil of the older half is like that of the Aheree forest, black.

"In summing up the contents of this forest I will assume (as I think it very probable) that the average of the first two surveys, that is :—

¾ 1st class
7 2nd class
8 3rd class

gives the average of the upper or north half; and the result of the third day's surveys, *viz* :—

2 1st class
8 2nd class
5 3rd class

that of the southern portion.

"I will also suppose that the forest is 10 miles long by 1½ miles broad, giving an area of 15 square miles.

Section.	Area.	1st class trees.	2nd class trees.	3rd class trees.
North	7½	6,890	64,309	73,496
South	7½	18,374	73,496	45,935
Total ..	15	25,264	1,37,805	1,19,431

"As these figures appear to me to be too high, I would suggest the reduction of each class by one-third. This is exclusive of saplings. No estimate could be made of their number except by guess, as they appeared so irregularly. There are first class trees at the north end fit to cut, and no time should be lost in felling them, for my experiments with teak in these forests show that as soon as a tree reaches a girth of six feet, it should be felled. Indeed, I believe it would be safer to cut when it reached a girth of 5½ feet I have felled about 50 trees of 7, 8, and 9 feet girth at the south end; *all* without exception have proved hollow, some entirely and others partially so. Enough timber however was obtained from those partially hollow to cover the expenses of felling, logging, and squaring."

II.—Reserved Forests.

Sub heads—1st, Demarcation and boundary work.

91. The survey and demarcation of the Aheree forest has been under Mr. Brereton. From the extreme unhealthiness of the jungle Mr. Brereton, was unable to commence his work till 22nd February, and by 31st of March the demarcation and survey of the outside boundary had been completed, and the forest had been divided off into five large blocks. It will be seen that the area of the forests is only about 18 square miles, though after careful examination last year, I had estimated it at 40, which only shows how impossible it is to make a correct guess on such a subject in the middle of a dense forest, and how necessary actual measurement is.

I cannot do better than quote Mr. Brereton's report on the survey.

"The survey was commenced on the 22nd February according to the memorandum received. First a broad line was cut round the limits of the forests as shown by the black line in the accompanying Map, commencing at the south-west corner of the forest between Bemarum and Jilmillee, and passes through parts of the villages of Bemarum, Korsennee, Alapillee, Bombaree, Lagam, Tulwara, Moluknille, Murmille, Gondlamurgoo, and Jilmillee. The length of this line is 24¾ miles, and the area included is 18 square miles, of which 6½ square miles are hill, and 11½ square miles plain. The next operation was to cut a line from pillar No 60, near Jilmillee over the hill and along the plain to pillar No. 24, near Alapillee. Then a line cut from pillar No. 10, near Korsennee to pillar No. 31 near Moluknille, divided the forest into four division. But on looking at the Map it appeared to me that the Bemarum portion was too large. A line was therefore cut from Pillar No. 40 of the ridge line to Pillar No. 7 of the boundary along the middle lateral spur. This divides the forest into five divisions as under :—

No. 1 Bemarum..	2,020	acres.
No. 2 Korsennee	1,600	„
No. 3 Alapillee	2,990	„
No. 4 Tulwara	3,050	„
No. 5 Murmille	1,830	„
Total	11,490	acres.

"These will contain from 10 to 20 sub-divisions each, and I have reason to hope that these Sub-divisions will be completed by 20th proximo. As yet no tree counting has commenced, and indeed up to the present time this work would have been impossible owing to the high reed grass which rendered all objects invisible to persons on foot and sometimes barely visible from an elephant. This important work will now however be pushed on as soon as the demarcating and surveying of the sub-divisions shall have sufficiently progressed.

"I have made two experimental Surveys to ascertain the rate of growth and decay of teak. The first was made on the north face of the north hill about a mile from the encamping ground known as Sherpillee. The results in

detail (Form B) are attached, and on looking at them it appears that teak attains a girth of about 2 feet 6 inches in 20 years, 3 feet 6 inches in 30 years, 4 feet 6 inches in about 45 years, 6 feet in 75 years, and 9 feet in 120 years, on the hill. Of the three first class trees one only, or thirty-three per cent, was sound; of the ten second class, five, or fifty per cent were found unsound; and of the third class, nine, or forty-six per cent showed signs of decay. From the above mentioned facts I am prepared to think that on the north hill all trees about 70 years are more or less unsound and that in trees from forty to seventy years of age fifty per cent, and from twenty to forty years in forty per cent, decay had already set in or was about to commence. There appears to be no rule as to locality or age, as one tree is found sound by the side of an unsound one of the same age, and decay appears also to attack trees of all ages over twenty years. There were no fourth class trees in either place, I am at present therefore unable to report on the rate of growth of young trees and saplings.

" The second experimental survey was made on the plain about half a mile from the encamping ground known as Junapanee. On the measured acre there were six first class, six second class, and the two-third class,—in all fourteen trees. It appears that on the plain trees attain a girth of 3 feet in 30 years, 4½ feet in 45 years, 6 feet in 65 years, and 10 feet in 125 years.

" The number of first class was one only, or sixteen per cent of the whole which was found sound; of the second class, two or thirty two per cent; and of the third class, two or one hundred per cent, were found sound. From the detail it would appear that in the plains all trees of ninety years and over are unsound more or less. From 30 to 60 years one-third, and from 60 to 80 years one-half, or fifty per cent are subject to the commencement of decay.

" These places were not selected, and may be looked upon as an average specimen of the portions of the forest in which they lie. But until surveys have been made in other portions the true results will not have been demonstrated.

" It will be seen fnom the accompanying statement that Rs. 3,491-13-10 have up to 31st March been expended on the survey operations. There have been no advances made, nor are there any standing debts.

" In conclusion I trust that when the remarks and explanations undermentioned are taken into consideration this report may be looked on as satisfactory. There were several retarding circumstances attending the commencement of this survey: one of these was my entire ignorance of the limits and position of the forest which necessitated a careful examination of the forest before cutting the boundary, another was the scarcity of labor, and this threw back the survey to a great extent. In this thinly populated district it is very difficult to obtain coolies, and as this is the time they prepare their " Dhyas " and collect "Mowha" they were very unwilling to remain on the work and had to be humoured a good deal to induce them to stay. These men also are far different from the sturdy Sautpoora Gonds and are quite unable to undertake the same amount of work. They have also had to go a long way for water, that in some places being barely fit to drink."

92. Appended are four sets of tables drawn up by Mr. Brereton giving details as to the soundness and growth of trees in the Aheree forest. But experiments on a much larger scale are required (and will be made) on these subjects before any attempt is made to draw fixed conclusions from them. But from these two surveys the following results are deducible :—

1*st*.—That of 9 first class trees which were felled, 3 were sound, 2 totally unsound, and 4 partially unsound; or nearly 30 per cent were sound, 20 per cent totally unsound, and 50 per cent partially unsound.

2nd.— Of 16 second class trees 11 were sound and 5 partially unsound, being about 65 per cent of the former and 35 per cent of the latter.

3rd. Of 21 third class trees 13 were sound and 8 partially unsound, being nearly the same proportion as in 2nd class trees.

4th.—That decay seems to set in at all ages, and though the big trees are much more likely to be unsound yet unsoundness is by no means confined to them.

Sub-heads – 2nd. Conservation.

93. Captain Jarrett expresses a strong opinion of the necessity of placing the Aheree forest under the operation of the forest Rules, without which he seems apprehensive that it will be in vain to try to check fires and Dhya cutting. Much harm however has not been done in the way of Dhya, and I think caution should be shown at present in punishing the Maree Gonds who are not yet used to Europeans for petty Forest offences. The Deputy Commissioner should however be requested to use his influence with the Zemindar to entirely put down Dhyas in the limits of the good teak forests. For the prevention of fires I should recommend the cutting of the forest Divisional paths to a width of 20 yards at least, and keeping them clear of grass if it be not found too expensive where the cost of labor is so high.

94. As regards forming a provisional teak reserve in the Ashtee Pergunnah north of the Wurdah station, although the teak is very poor indeed it may be worth while to watch it for a few years. The correspondence on this subject with the Civil Authorities has been going on for some time, and I have only just received the Commissioner of Nagpore's consent to its formation. The teak is so very poor that I cannot recommend that any expense for demarcation be incurred at present, but it should be strictly a provisional reserve and the progress of the young teak should be watched. Application that the tract should be withheld from sale shall be made at once to the Chief Commissioner.

95. On the reproduction of teak from seed Captain Jarrett has the following observations:—

" In the above report of teak in the Mirkulloo tract I have twice alluded to the spontaneous reproduction of teak in certain localities. I have observed it on the west side of the Aheree tract as well as at Mungaira; but where the seedlings grow closely and thickly they do so in such ground only in which teak has never grown before. Seedlings are to be found all over the forest, but they are solitary instances. It appears strange that in places where there are large trees and around which an immense number of seeds must fall that after the annual fires a tolerable percentage of them do not germinate; but stranger still is the fact that in places where seedlings spring up thickly there are very few trees, comparatively speaking, in the neighbourhood to shed seed; and notwithstanding that these seeds and a much smaller quantity too run the same risks by fire, yet 25 of them spring up to one in the former case. I have counted as many as 50 seedlings to an acre and as I have never seen more than half the quantity of grown up trees in a similar area I presume there is some process in nature by which the superfluous trees are killed to afford room for the rest to grow. I cannot attribute the reluctance of young teak to grow amidst the older trees to any other cause but that of exhaustion of soil. The conditions offered are the same with one exception to that presented to teak in new ground: such as soil, climate, seed, shelter, and its periodical removal by fire; yet when the soil has not been drained in rearing teak the free growth of the young trees shows that the essential requisite for their development is not wanting in it.

" A glance at the old forest will afford proof that the soil did not lack that essential once, but that it possesses it at present in a very slight degree.

"I would also bring to notice that whilst looking over the stumps which I cut last year, I observed that many of them have thrown out four and five strong shoots. On examining the forest more closely to see if shoots from stumps have ever grown into trees of any size that would yield timber, I observed several shoots which measured four feet at the base. As teak readily reproduces itself in this way, it is better perhaps that it should do so thus than by commencing afresh, as a young tree being well raised from the ground, the shoots do not run the risk either of being trodden down or of being scorched by the annual fires."

Sub-Heads—3rd. Felling and timber operations.

96. The following is Captain Jarrett's report on this head :—

"Since commencing timber operations in the Aheree forest on the 4th April 1867 to the end of March in the present year, I have felled altogether 1,318 trees. Of these, 621 have been worked up into 1,387 logs containing 38,733 cubic feet.

"When commencing felling operations last year I was careful in selecting trees as you desired me to send a supply of timber to Nagpore before the rains set in. Selection therefore was necessary to avoid felling as little bad timber as possible, and to save time. 34 trees were felled on the Beemarum side of the range, which gave 1,435 cubic feet of sound timber, and 354 bad, that is, hollow. Having now a sufficient quantity of wood to send to Nagpore I changed ground to Sherepilly at the north-east corner of the range as teak was more plentiful, and continued felling operations.

"Here I caused good and indifferent trees alike to be felled, *but of first class sizes*; those that were palpably bad I left alone, as I did not expect them to yield any timber to cover the expense of felling. Under this plan of working 66 trees were felled, but they gave such a large percentage of unsound to sound timber, that I was induced at once to abandon it for that of selection. That is, there were 2 477 cubic feet good, to 2,468 bad. The result of the change was at once to reduce the percentage of the unsound from 100 to 25 per cent. There were 52 trees cut which gave 2,229 good cubic feet to 564 bad. My plan this year was at first to select trees in order to have a sufficient quantity of sound wood in hand, to cover the expense of experiments with bad timber. The operations were conducted in the Allapilly jungles, about 1½ to 2 miles northwards from the foot of the range.

"The surface of the country is level, and little bamboo is met with The forest is not so old as that on the hill. The large 8 and 9 feet girth trees are not found here, but the 6 feet trees are in capital condition. I have not prepared all the timber that I felled in the forest; but as much as is ready is measured and marked; and the proportion of bad to good is as follows:—569 trees have yielded 1,051 logs, their contents being 31,538 cubic feet good, and 4,802 cubic feet unsound In one place the operations extended to hilly ground, the rise being about 80 feet above the level of the country; 6 trees were cut on this elevated portion, they yielded 59 cubic feet of good timber to 467 cubic feet of bad, ground was at once changed. In my experiments with large timber near Tulwarra (east-side forest) I found that trees in stony and hilly ground amongst which bamboos grow were all hollow. I felled 50 trees in this forest; most of them were selected for their size and sound appearance, 40 were of the 7, 8, and 9 feet sizes, and were all, without exception, hollow, some entirely, and others only partially so. When I come to measure them I do not expect that more than one-third of the timber will be good; but the remaining one-third will give quite enough to pay the expenses of the bad. None of the 10 six feet were unsound or had commenced to be so, they were entire. The conclusion to which I have arrived from a careful observance of the above, is that there is *less chance of teak being unsound whilst growing on level ground*, or *rather where the soil is deep than on stony ground.*

97. Of the timber that has been got out of this forest, 83 logs containing 13,287 cubic feet have been disposed of partly to the Arsenal and Public Works Department, and partly to private individuals. It has been impossible to get carts as yet this season, or more wood would have been got rid of.

98. *III.—Unreserved Forests*

and

IV.—Financial.

will be treated hereafter in the General report.

V.—General.

99. The works which urgently demand attention in this forest, are :

1st,—The survey of the Mirkulloo forest. This had better be made by Mr Brereton and his Establishment, the completion of the Aheree demarcation and counting work being left to Captain Jarrett after Mr. Brereton has finished the Map.

2nd, The utilization of the immense amount of unsound timber.

3rd,--Careful attention to the health of the Establishment, and the provision of good water and shelter in the forest.

4th,--The provision of Government carts to carry out the wood.

100. As regards the first and two last heads, I have but little to say, except that the forest seems, as far as we have experience of it, so terribly unhealthy (it having been necessary to move the whole Establishments out of the jungles twice during the last working season), that every effort should be made to mitigate this terrible drawback. I consider myself that the working season must, for the most part, be confined to about 4½ months. If they are not very expensive, I would strongly advocate the adoption of the American screw pumps here, which have been so successful in Abyssinia, as one great drawback and cause of unhealthiness in my opinion is the scarcity of water all over the forest. Moreover for the most part what there is of it becomes putrid in the hot season. I have had three wells dug already but these had to be sunk about 25 feet in order to obtain water. A good hut has also been built, but *several huts are required* at convenient places all round the forest; and everything should be done to make the place as little objectionable for those who have to stop in it as possible.

101. But the question of making the best use of the unsound timber in these forests is one of the greatest importance. Considering the urgent demand of the Great Indian Peninsula Railway for sleepers, and the enormous amount of timber available here which is of no use for beams or large works, it seems to me that this is the best use that the large unsound trees can be put to. I think also that the work would be best done by steam machinery made for this special purpose, as all the available manual labour will be best employed in collecting the timber. But I am strongly of opinion, that if this plan is considered advisable a separate Officer with a distinct Establishment must be sanctioned for the sleeper work, whether it be carried out by a Saw-Mill or by hand-labour.

102. I also would state that my opinion on the employment here of elephants for dragging logs has somewhat changed. There is great difficulty about fodder for elephants here, and there is, I think, great risk as to their health in consequence. Moreover, the price paid for them is so high that it becomes a serious consideration whether we should not try as much as possible to do without them. A few elephants will always be necessary to help to get heavy logs out of difficult places; but when each elephant now costs Rs. 2,000 there can be no doubt, that pairs of buffaloes bought with the same money and

yoked to low trucks, such as we have used very successfully for the heavy sâl logs in Topla and Delakaree, will do far more work and can be kept with a less risk than elephants. The ground in Aheree outside the hills is generally flat and carts can readily go about anywhere.

103. I would notice also that the expense of living for both Europeans and Natives here is extremely high, from the distance which grain as well as all stores have to be brought. And I would beg to extract a temperate and just statement on this point from Captain Jarrett's report. It is however nearly equally true as regards many of the other forest divisions :—

"I would beg to bring to notice the great difficulty there is in obtaining supplies in Aheree, especially the long distances I have to send for them for my own use and for which my travelling allowance is quite inadequate. In such places the Officers of the Survey would be allowed an increase of Rs. 30 per mensem to their travelling allowance according to Regulations. Even this has been thought insufficient, for in a late ruling I remarked that at Colonel Thuilliers' recommendation Survey Officers have been sanctioned an increase of travelling allowance to the extent of twenty per cent on their pay."

104. The difficulty of carts to go for the timber is very great. If it had not been so, many thousand cubic feet might have now been stored safe in the Depôt at Chanda, which have been more or less injured by a fire which raged in the forest last season. In consequence of this, 50 carts have with the sanction of the Chief Commissioner been ordered to be built, which will in a measure place us in an independent position in this matter. I believe it will be best to keep up a certain amount of carriage *in all divisions* of the forests.

105. In conclusion, I beg to state that Captain Jarrett deserves well for his unremitting attention to his work in these distant forests. If Aheree is our finest forest, it is certainly by far the most unhealthy and in every way disagreeable post we have, and I do not think any other Officer on the Establishment would have stood the work and exposure as he has done. His work is good at every point, and I trust that means will be found before long of advancing him to a Deputy Conservatorship, as his present position as an Assistant in the Department is much below what he well deserves to hold and what so heavy a charge as his merits.

106. Mr. Brereton is a young man of very high character and intelligence. I much regret that his physical strength and health seem hardly equal to the work which is required of him. I hope he may in due course become stronger in health, as in point of natural ability as well as in the desire to do his duty he comes second to no one in the Department. Of the Natives in this Division, Abdool Hafeez, the Survey Darogah bears a very high character, also Jemadar Bawanipersaud; and under Captain Jarrett, Darogah Permaloo.

P. S.—From reports recently received I have every reason to expect that the Survey of the Aheree forest will be completed by the end of the present working season, as also its division into blocks. This is good work, considering the sickness of the season. The enumerations of the trees must be carried out next year, by Captain Jarrett, while Mr. Brereton goes on to survey the Murmillee forest.

III.—Unreserved Forests.

107. Annexed is an account of the revenue of each district during the past year. The total shows an increase of Rs. 77,000,—the chief increase being in the districts of Chanda, Jubbulpore, Nagpore, Raepore and Balaghat.

Comparative Statement of Forest receipts for 1867-68 *and* 1866-67.

Unreserved Forests.	1867-68.			1866-67.		
	Rs.	A.	P.	Rs.	A.	P.
Jubbulpore	16,418	5	6	1,995	2	0
Dumoh	9,380	2	9	10,012	13	9
Saugor	12,870	4	3	12,530	2	0
Mundla	10,059	6	6	8,056	1	7
Nursingpore	3,193	11	6	1,784	0	0
Nagpore	20,905	13	3	15,885	15	4
Wurdah	8,711	6	6	7,000	0	0
Chanda	34,425	5	3	15,518	8	6
Seroncha	10,644	14	9	12,295	10	8
Raepore	18,739	8	0	1,315	8	0
Belaspore	5,694	2	0	3,685	4	0
Sumbulpore	...	..	..	..	..	..
Hoshungabad	16,327	13	1	20,975	8	3
Baitool	13,348	12	1	17,440	6	3
Nimar	13,940	1	11	13,223	7	2
Seonee	17,560	0	5	15,321	4	6
Chindwara	8,817	14	2	14,104	8	4
Balaghat	20,400	0	0	..	..	..
Bhundara	30,864	15	5	2,1851	5	6
Total ..	2,72,302	7	4	1,92,995	9	10

The small decrease which is shown in a few districts has been owing to unavoidable causes, chiefly to the smaller demand and consequent cheapness of Mowah since the introduction of the Sudder Distillery system.

108. I have carefully watched the working of the system of leasing out the unreserved forests during the past year, and I am bound to say that a very careful personal inquiry, as well as after conversing with many of the most experienced Civil Officers in the Provinces on this subject, it seems to me that the present system, however satisfactory it may be in a revenue point of view, and however well it seemed to work when it was first introduced, has developed many evils which at first starting did not manifest themselves, nor if it had been possible to keep the jungles out of the hands of monied speculators, and had the people of the country shown any enterprise in taking them up, would these bad features of the lease system, in my opinion, ever have attained the head they undoubtedly have done. The first evil complained of, is that no doubt the present class of lessees commit a large amount of oppression of various sorts on the people which it is almost impossible to check, and the dissatisfaction felt by the rural population in consequence is very great, apart from the general distaste which exists to the payment of a tax on such necessaries as firewood, grass, and bamboos. The second evil is taken from the forest point of view; and that is, that by the present system nothing whatever has been yet done in the interests of conservancy; on the contrary, I think experience goes to show that the system of leasing tends rather to encourage waste, as every lessee tries to make as much as he possibly can out of the jungle during the time he holds the lease of it. In this way it has been brought to my notice that lessees have in some instances cut down and stored large stocks of Unreserved timber while in possession of the jungle, for sale afterwards,—a privilege which it was in no way intended to give them. And in the third place I believe that the present is not even the best system for developing the revenue; on the contrary, I think that by other methods of collection judiciously applied a much larger revenue would be obtained, with much less dissatisfaction among the people.

109. As regards the general dissatisfaction which exists throughout the country, I think there can be no difference of opinion as to its universality, though the opinions of Officers well qualified to judge vary much as to the amount of *real hardship* felt by the people from the tax which is levied on the jungles. In my own judgment (except in Mundla and Balaghat, and some of the very poorest localities), there is no great objection to the present rules on the part of the forest population on their own account, where the villages have generally been liberally provided for by the Settlement Officers, and they get all they want free. But the pressure is severely felt by persons living in the cultivated plains, who have not only to go 20 or 30 miles to fetch their wood and thatching grass, but have also perhaps to pay not one, but two or three lessees whose tracts they may be compelled to pass through and whose servants each and all stop their carts and exact payment in the name of Government. This illegal levying of forest dues is, I fear, too often complied with through fear rather than resisted, as it should be. But anyone acquainted with the customs of the people will know how these sort of men will come out and stop a string of carts, take out the bullocks, and threaten to throw down the loads, all in the name of Government, to avoid which the poor wretches of cartmen will gladly pay the duty two or three times over to different persons. For all this oppression Government, and not the perpetrators of the oppression, get the blame. It is in fact simply the worst form of farming out the collection of the revenue to Chuckledars as practised by the Native Governments. No wonder then if the people generally do feel a considerable amount of dislike to having to pay forest revenue by the present system. But nothing also is now done for conservancy, and in some cases near large cities and where the demand for firewood and small building timber is great, there is reason to believe that the waste of the forests may cause inconvenience to be felt unless care is taken, for there can be no doubt that the demand for lime, charcoal, and bricks for building Barracks, Railways, and other public works, has caused an enormous increase of late years in the consumption of wood fuel.

110. The whole matter has been recently under the consideration of the Chief Commissioner, and will be submitted for the opinion of all Civil Officers, and, in the meanwhile orders have been issued, which if carried out in the spirit which it is intended they should be taken up in, will I am sure amply provide for the removal of all the sources of complaint above alluded to. By these orders an option of four systems of collecting the forest revenue has been offered to all district Officers :—

1*st*,—By leases.

2*nd*,—Kham management.

3*rd*,—By commutation of forest dues.

4*th*,—By summary settlements.

The two first from experience however may be at once put aside, except in some particular and special cases, as condemned by previous experience. The two latter seem in every way likely to answer better both in a revenue and forest point of view, and also as likely to commend themselves to the general habits and tastes of the Natives.

111. I do not think that any sacrifice of revenue will be entailed in carrying out the orders above adverted to, while there is no question but that the feeling of contentment which they will give to the whole of the agricultural and jungle population throughout these Provinces will be immense. More-

over, in a forest point of view, the present is an immense stride in advance of the old lease system, as while some portions of the forest are set free, other portions, and especially in parts of the country where large demands are likely to spring up, will be set apart for reservation from cutting and for rest. Moreover, by setting free the Subordinates of the Forest Department from the duty of collecting the revenue they will be able to give more time and attention to see that conservancy orders are acted up to. The system of commuting the right to grass and firewood, and wood for agricultural purposes, for a small annual payment by villages was first instituted by Captain Lucie Smith in Chanda, and from local reasons under his management seems to have worked exceedingly well there. By this system every householder makes a small annual fixed contribution, which is collected by the proprietor of each village, in return for which payment he has the privilege of taking as much grass and firewood as he likes from such Government jungles as may be set apart for the purpose, except the reserves. In a district where there are no large towns, while there is any amount of jungle, like Chanda, this system is easily worked; and although in large and rich districts with several large towns in them, like Nagpore, it seems perhaps to present difficulties of application, and in any case its successful working must depend much on the personal character and vigour of the District Officer, as well as on the general pliability of the people, since to be of any use it must be universal; yet there is no doubt that in Chanda the people have gladly agreed to make this small payment, the aggregate income derived from which amounts to about 17,000 rupees, in order to escape the worry of having the jungles let out to Contractors, and I do not see why with care it should not be equally successful elsewhere.

112. It is possible however that another somewhat similar plan might answer better in some districts by which without any loss of revenue conservancy might be kept up, and the people at the same time not suffer inconvenience. I mean that of making a summary settlement of the forest right in the Government jungles with the neighbouring landholders. But to this I am less inclined personally than to a system of commutation, because people of this class would I believe have no more mercy on any but their own proper tenants than lessees. To the landholders themselves I doubt not but that it would be exceedingly agreeable and popular, and there would be no complaints then from them.

113. But whichever system be adopted, I strongly recommend that selection should be made of blocks of the most promising jungle in each district for special reservation as preserves for the growth of young teak as well as for fuel and small building timber wherever the demand for these articles is likely to justify the expense of doing so. These blocks must be managed on a regular system, and not be open for people to cut fuel or graze their cattle in, because they may have paid the commutation fees. After some little experience is obtained in the working of them a set of simple rules for their management should be drawn up. But even these I would recommend being framed according to the requirements of each district, and this had best be left to the discretion of the Deputy Commissioner in consultation with the Conservator of Forests, and subject to the approval of the Chief Commissioner. Certain cardinal principles must be insisted on everywhere as being essential to conservancy, but in adaptation to local requirements the rules must widely differ. The question of the exclusion of cattle for instance, is one which must necessarily be dealt with according to local requirements. Another point to be noticed is as follows, and that is, I would recommend with regard to the second head, that *no trees* above three feet in girth should be felled in the forests, *whether of the Reserved* or *Unreserved descriptions*, without application to either the

Tehseeldar or District Officer who whould levy the duty under Rules XI., XVI., or XVII. My reasons for this is that lately I have observed a considerable abuse of Government rights in respect to this point, for large numbers of trees have been felled of the unreserved sorts such as Tendoo *(Dyospyros Melanoxylon)*, Rohun *(Soymida Febrifuga)*, Kowah, *(Pentaptera Arjuna)*, Dowra *(Canocarpus Latifolia)*, for temporary works such as centres for the great bridges both on the Railway and Government Public Works, for which not one rupee of duty has been paid to Government and over the felling of which no check could be exercised by the Forest Department. This has been corrected for next year, but it is very desirable that with a view to proper conservancy some real control should exist over the felling of timber trees of whatever description, and it can be very well done by the District Darogah, under the supervision of the District and Forest Officers, if matters are properly managed. Besides, the duty on timber of this sort was never intended by Government to be given up, and a considerable revenue should be collected from this head.

114. Regarding Dhya cultivation in the district forests of Mundla I append the following interesting remarks from Captain Ward's report :—

"Last year in reporting on the efforts made to stop Dhya cultivation I reported what had been done in the way of explaining to the Bygahs and Gonds the advantages of a more settled style of cultivation. After visiting the haunts of all the Bygah communities in Ramgurh, I am more convinced than ever of the impossibility of putting an immediate stop to this practice forcibly : it would not only be a very great hardship on the Bygahs, who would be reduced to starvation, but it would probably drive a peaceful and orderly community to resort to crime as a means of livelihood. In my opinion the only thing that can be done at present is to circumscribe their limits, by preventing them from wandering about at will among the Government unreserved tracts, and endeavouring to induce them to settle in the open country instead of in the heart of the very inaccessible hills in which they reside. The Gonds, as a rule, in Ramgurh cultivate with the plough, although they, too, frequently have their Dhyas on the hills. To put a stop to their depredations on the forests will not be difficult, for it is no hardship, or comparatively little, as the number who live by their axe alone is very small. But with the Bygahs it is quite different ; they have no other means of livelihood, and the custom has grown so strong on them, that they almost look on it in a religious light; still I do not think that there is any reason to despair of their improvement, but it is a work of time, and cannot be done in a day. I have already near Ramnuggur induced the Bygahs of two villages to take to ploughs; they have not given up Dhyas, for only half of the villagers are possessed of ploughs; but once they see the advantages of the latter, they are certain to do their best to obtain them, for they are very well aware of the value of money. In Pertabgurh this is not the case, where the first thing we have to do is to create a want, and this is not easy as long as the people are so completely cut off from the outer world, and scarcely know the value of money. I have done my best in my late visits to those parts to induce them to confine their attacks on the forests to certain given tracts, and hope soon to complete the arrangements."

115. The following table shows the amount of offences against the Forest Act and number of convictions during the past year. The greater portion of the cases are for cutting timber of the reserved sorts without permission. The following includes all cases, both those brought up by the Forest Department, and by the ordinary Police, and Revenue Authorities :—

List of Forest offences tried before the Magistrates during the year 1867-68.

Districts.	Number of cases.	Number of persons.	Convicted.	Let off.	Fined.		
					Rs.	A	P.
Jubbulpore	13	57	33	24	560	0	0
Mundla	19	50	41	9	168	8	0
Dumoh	29	56	56	...	236	0	0
Seonee	...	..	...	...	..	..	..
Saugor	19	47	42	5	298	8	0
Nursingpore	11	...	..	...	..	...	..
Baitool	4	10	7	3	65	0	0
Chindwara	26	114	32	82	..	..	...
Hoshungabad	...	...	..	...	..	..	..
Nimar	..	..	..	..	..	..	...
Nagpore	6	14	9	5	..	...	..
Bhundara	..	..	..	..	..	...	...
Wurdah	2	..	..	2	...	..	..
Chanda	23	96	58	38	80	8	0
Seroncha	10	51	48	3	35	0	0
Balaghat	4	...	..	..	...	..	..
Raepore	1	6	6	..	12	0	0
Belaspore	1	5	5	..	...	...	...
Total ...	168	506	337	171	1455	8	0

116. In conclusion, I would beg to offer my best thanks to all the District Officers of these Provinces for the interest they have taken in Forest matters, and for the kindness and courtesy with which any hints I may offer for their better management are always accepted. Their forest reports will all be submitted to the different Commissioners, and will be replied to in detail. I am especially indebted to Captains Ward, Twyford, Lucie Smith, and Mr. Jones, for valuable information and suggestions for better forest management.

IV.—Financial.

117. The following is the account of the Forest Revenue for the year 1867-68 :

	Rs.	A.	P
By cash received from Reserved Forests	76,671	13	3
By cash received from Unreserved Forests... ..	2,72,302	7	4
Cash Total ...	3,48,974	4	7
Add timber in stock	2,34,878	0	0
Outstanding balances due to the Department ..	38,112	8	2
Total Assets ...	6,21,964	12	9

118. As compared with the assets of last year there is an increase of Rs. 2,113, but then the diminution in the total value of the stock after a careful valuation must be taken into consideration. This decrease amounts in the

Northern and Western Divisions' accounts in round numbers to Rs. 70,000. The value of stock has now been placed purposely very low, perhaps too much so, but this is an error on the safe side.

119. As regards the receipts it will be noted that there is a large increase of Rs. 79,306-13-6 in the Unreserved forests. This is satisfactory, and goes in some degree to counterbalance the diminished receipts from sale of timber.

120. Under this latter head the chief item is a diminution below the revised Estimate of Rs. 74,985-0-6 in the Western Division; but this timber is all in hand, ready for delivery, and when Lieutenant Doveton drew up his estimate last November there was no reason to anticipate that there would be any difficulty in carting out the 50,000 cubic feet of timber ordered for the Saugor Department Public Works, or the sleepers to the Railway. This difficulty sprung up all at once, chiefly owing to the disorganization of the cart market, by the sudden increased demand for the Railway works. Had it been possible to make delivery before the end of the official year, 6,500 sleepers ready at the end of the season in the Western Division, and the price of the wood ordered for Saugor would have made up fully the amount estimated for; as it is the timber is now being delivered and will come into next year's accounts. I may add that it was impossible to obtain the services of fit men to fill the posts of the recently sanctioned Darogahs in the Western Division till near the end of the official year, and that the establishment was consequently short-handed to carry out the work. I hope next year the Department will possess carts of its own to prevent such *contre temps* as this, for there can be no doubt that all cart men dislike excessively to work in the forests if they can get work elsewhere.

121. The outstandings at the end of last year amounted to Rs. 23,810-1-11 viz :—

Due for revenue	Rs.	10,271	6	0
Due by Contractors	,,	13,538	11	11
Total,	Rs.	23,810	1	11

Of this the whole of the former has been recovered, and the latter has been worked out or is in the process of being so. There are no bad debts reported.

122. The outstandings at the close of 1867-68 on account of revenue amount to Rs. 7,059-15-11, which are for unadjusted accounts with the Department Public Works. The only large item is Rs. 6,545-6-0 in the Western Division, owing to a dispute as to the measurement of timber delivered to an Executive Engineer, which will necessitate the Forest Officer proceeding to the spot to investigate, and which he had been unable yet to do. As this will be settled by a transfer invoice the matter is not so important and shall have due attention paid to it.

123. The amount of outstandings due by contractors and disbursers at the end of the present year amounts to Rs. 31,052-8-3, which is in the course of being worked out. It must be borne in mind that if this appear to be a large sum, yet the accounts are closed just when the working season in the forest is at its very height, and when large sums of money must of very necessity be out on the works, the accounts of which it is impossible to adjust until after the season closes.

124. The result of the operations of the year then may be stated as follows :—

Dr.	Rs.	A.	P.	Cr.	Rs.	A.	P.
Cash receipts of the year ..	3,48,974	4	7	Stock in hand at beginning of the year ..	2,28,947	0	0
Timber in hand at end of the year	2,34,878	0	0	Outstandings, debts do. ..	23,810	1	11
Outstanding debts due to the Department at the end of 1867-68. ..	38,112	8	2	Result of the forest administration of the year 1867-68	3,69,207	10	10
Total Rs. ..	6,21,964	12	9	Total Rs. ..	6,21,964	12	9

as compared with Rs. 3,81,935-10-3 for the year 1867-68.

125. I would note that the outstandings in the Unreserved forests (if any), cannot possibly be shown in this report as the date of the leases does not expire till 30th June. In the next year's report then this must be duly shown. It will be seen, however, that this revenue developes itself rapidly, and in my opinion the changes that have been made in the administration of these forests will tend to increase rather than diminish it.

226. As regards the valuation of the stock, the grounds on which this has been made have been explained in the body of the report. As stated elsewhere, the whole question of the stock and its valuation is not yet altogether satisfactory, owing partly to the ignorance of the native subordinates in classing timber, and partly also to the want of a sufficient number of men able to measure up wood and keep a stock account correctly. A set of well considered rules has been issued on both these points and every attention will be paid to their correction.

127. Before concluding the report I will now offer a few remarks for the consideration of the Chief Commissioner.

1st.—In respect to the Unreserved forests, in para. 77 of last year's report I wrote that " the system of Forest management under the District Officers is now thoroughly established, and works with the best result." I would wish it to be distinctly understood that anything I have written in the present report regarding the unsatisfactory working of the lease system in the Unreserved forests is not intended in any way to militate against or contradict what I wrote last year regarding the desirability of interesting the District Officers in forest conservancy, and obtaining their co-operation in carrying it out, although the further working of the lease system seems to show that however satisfactory it may be in a revenue point of view it works harshly with reference to the people. This however is a point of administrative detail, and not of principle; and it seems to me that without the hearty co-operation of the district Authorities the management of these vast tracts of forest never can be conducted in a way which will permit of the conservation of the jungles without unnecessarily vexing the people; and I sincerely trust that in these Provinces whatever details may be introduced in the general management, this may ever be kept in view as a leading principle of Forest administration.

2nd.—As to the matter of forest revenue I would ask permission here to quote from a letter which I submitted some time back to your Office, in which with reference to a remark of the Chief Commissioner I offered a short statement of the reasons by which the crediting of the revenue from the Unreserved forests to keep up the Forest establishment may I think be fairly justified.

"After an experience of eight years in the forests of the Central Provinces I can fully confirm the Chief Commissioner's remarks that there is little real Forest Revenue in these Provinces to set against the expenses of the Forest Department. The truth is, that the forests may be said to be worn out, and if they are to be reproduced by the raising of future wood, whether it be by plantations, or whether a system of natural reproduction be pursued, the forests, like anything else that is valuable, cannot be had except the price be paid for them.

"I do not mean to say, however, that the Forest Reserves will for the present produce no revenue at all to set against their expenditure. There is now a large amount of timber at Depots in the different Divisions, which probably does not fall short of three lakhs of cubic feet, and represents about the same number of rupees, all of which will, if brought gradually on to the market go far to meet the requirements of the country for a considerable time, and should produce an annual income of Rs. 70,000 or 80,000 for some years to come; and in addition to this some of the forests, such as Boree, as well as the Mundla sâl and the Baitool teak forests, will still continue to yield a certain amount of timber every year, and as this becomes used up the young trees will in time be coming forward; and with care, I do not myself doubt but that in this way the actual full cost of the Department can be met, though for many years the produce of the Reserved Forests cannot afford much surplus revenue to the Government.

"The present system, however, is different. It has been ruled by Government that a number of other items, such as the revenue derived from jungle produce, the sale of Mowah (from which a very large revenue accrues) chironjee, lac, gums, resins, grass, and firewood, as well as forest grazing dues, be credited to the Forest Department as Forest Revenue. The Unreserved forests from which these are produced are managed by the Deputy Commissioners aided by some subordinates furnished from the Forest Department, and it is quite true that the revenue, although a Forest Revenue, cannot properly be looked on as the result of the operations of the Forest Department.

"Under those circumstances then perhaps it may be questioned if it would not be better and more honest for Government to look the matter straight in the face, and see what their forests were costing them. For it may be said that the Miscellaneous Forest Revenue could be collected, and perhaps not much harm would be done to the jungles, if no Forest Department at all existed.

"To this argument it seems to me that it may be properly replied, that as the present resources of the reserved Forests are so far exhausted, the first duty of Forest Officers must be to economize the stock of timber in hand, and for some years to come to take as little out of the Reserved forests as possible until the new stock of timber is far more advanced than it is at present; and that there is great danger, if at any time the receipts show a falling revenue that the temptation of showing a good balance sheet will be too great for Forest Officers to resist, backed up, as they would be pretty sure to be, by superior authority and by the Financial Department. If all the timber for instance at the present moment in the Boree Depots were pressed into the market at the low price at which it would easily be taken by the petty timber traders, it would it is true make a good show in the Revenue returns for the next two or three years, but it would only serve to put the wood into the hands of a class of men who would then hold the sole control of the market, and would not scruple to use it in a way which would be a serious inconvenience both to Government Departments and to the public generally.

"It may perhaps be said that if extraneous sources of revenue were taken away there would be a greater stimulus to the Forest Department to develope all legitimate sources of revenue of its own. This to a certain extent

may possibly be granted, and the question then perhaps resolves itself into this, *viz.* : if the revenue derived from the Unreserved forests was not shown in the returns of the Forest Department, and were the Forest Department reduced to the revenue derived from the forest Reserves actually under their own management, would the advantage of the increased stimulus to the Officers of the Department to develope the revenue resources of *their own Forests*, counterbalance the danger there would be that in case of a falling revenue the Reserved forests should be managed with a view to increased receipts, rather than to the conservation and economical disposition of the timber ?

"With all deference in reply, I would however submit that the present system is a sound one ; that proper Forest conservancy in the first instance involves expense, and that the profit to be derived from it is one which will be enjoyed by a future generation, and that in the meantime it is quite fair to utilize the forest resources which are now available to pay for the production of timber which has yet to be raised. The fact that the ordinary Revenue Officers of the country collect this portion of the Forest revenue is simply a matter of *detail administration*; and it has been so arranged for purposes of general convenience, and because their present establishments enable them easily to carry out the work.

"The Zemindaree teak forests of Aheree and Panabaras and the sâl forests of Chutteesgurh will it is true yield some timber for consumption, but they will not yield much revenue, because being all very distant. the timber is heavily weighed with long carriage in addition to the royalty paid for the wood to the Zemindar. Thus it will require good management to make them even contribute a fair share towards the cost of the general establishments, and the chief utility in working them rests on the saving of our own timber, which the supply thus obtained elsewhere will effect.

"And indeed, if it were only a question of obtaining a supply of timber for Government, it would be far cheaper to employ timber dealers and contractors rather than a Forest Department to obtain it. In my letter to your address about a year ago, No. A 319 of 20th March 1867, I wrote as follows:—Connected with the price of timber is the question of Forest revenue, and how far conservancy is affected by it. I think it should be borne in mind that forest revenue is at present derived from two sources,—first, from timber operations properly so called; and secondly, from forest produce from the sale of firewood, fruits, grazing dues, and such like items. It seems desirable that we should look to the latter as our main source of revenue rather than to the former, for conservancy should be the sole thought of a Forest Officer; and he, like a contractor, should not be actuated by motives of profit in working the forests: but it is not as easy as it seems for an energetic young Assistant, anxious to show a good return in his balance sheet, to pass by a tree which it will cost him two rupees to fell and convey out of the forest and pass on to another one which will cost him twenty rupees for the same operation, and yet this will be his daily duty if he carries out his work on true principles of forest conservancy as he ought to do. If Government would be willing to give up the idea of making a revenue so much out of timber work and trust rather for revenue to the development of the usufruct of the forests, and if Forest Officers became impressed with the idea that the quality of their work would be the main point looked to, Government would not be throwing away the money which it now pays for a Forest Establishment, but would be ensuring far greater benefit than can accrue from what is after all an imaginary balance sheet.

"It is possible that years hence when the forests in the hands of the Department are got into thorough order, and the plantations are well advanced, some eduction may be possible in the Forest establishments. But considering the

number of men always more or less *hors de combat* from sickness and the extent of country over which operations are carried on, the present establishment is in my opinion at the barest possible limit which will suffice to carry on the work.

3rd.—There are several minor points in the administration of the Department which have lately had my attention directed to them, but on which continued supervision will be necessary until they are got into thorough good working order. I refer especially to the Stock accounts. I am sorry to say that, except in Lieutenant Doveton's Division, where there are very good arrangements for the stock, much confusion seems to exist under this head. The confusion chiefly arises partly from the want of a settled definition of what is to be classed as stock, and partly from the ignorance of the Duffadars in measuring up timber, and want of proper arrangements for marking the logs. I have drawn up a set of clear orders on all these points, and have ordered a stock book of one uniform pattern to be kept at every depot, from which all stock accounts should be compiled, and I have directed that no man be appointed to the charge of a Depot however small, unless he is able to measure up and register timber. At present different systems are in use in the different Forest Divisions,—some Officers bring timber on stock as soon as it is felled; others do not so till it is collected in Depots in the forests; others only consider that stock which is brought to a Depot from whence it will be finally disposed of: while, on the other hand, I believe that in another Division even the slabs sawn from the side of sleepers have been brought on stock again as fresh logs. Hitherto want of qualified men for charge of Depots has been a reason for these somewhat unsatisfactory arrangements; but the Establishment is now becoming sufficiently strong for a much higher standard of efficiency to be insisted on.

128. Another point demanding close attention, is to watch that the stock of small and indifferent pieces of timber is not allowed to accumulate. It is better to sell such pieces at a cheap rate than to preserve them in Depots to deteriorate, as they will do very rapidly, if not disposed of. On the other hand, the retention on hand of a certain amount of first class timber is highly desirable, and every effort should be made to effect this from the sâl forests of Mundla and the teak forests of Chanda, in order to supply the wants of the Department Public Works in Jubbulpore, Saugor, and Nagpore. For unless we have timber of good quality always on hand for the wants of the Department of Public Works, the Officers of that Department naturally will distrust us and will get their timber from Bombay or Allahabad by Rail, even at largely enhanced prices.

129. But to carry out this, the Forest Department must possess carts and bullocks of its own. I have been wearied out by the cart contractors, who seem to dislike forest work above all other work, and who avoid us, and break their contracts in spite of every effort to attach them to us. It must be remembered also that much of the timber is not of sufficiently good quality to bear a high rate of cartage being added to it; but I hope that 50 carts in each of the three Forest Divisions of Jubbulpore, Chanda, and Hoshungabad, will be got ready during the ensuing monsoon, which will render us tolerably independent of the cart contractors, and admit of wood being delivered under all circumstances with certainty to the Department Public Works.

130. Finally, it is now eight years since Forest conservancy has been set on foot in these Provinces, or rather in the northern portion of them. To me it seems a long time to look back on, and I often think myself, and it might have been perhaps expected, that more should have been accomplished in the forests than has been done. That much is wanting before a perfect system of Forest conservancy can be said to exist, cannot be denied: but when it is remembered that when the Department was first formed in 1860, an almost total ignorance existed of the very nature and contents of the forests on the part of perhaps every Officer connected with the Administration; when it is remembered that the

whole of this knowledge had to be acquired before any definite line of action could be taken; and when the vast area of forest over w hich our operations have been extended, is taken into consideration, I trust that it will not seem that the Department has failed entirely in the object for which it has been set up, if only a sound foundation has been laid on which those who come after may build up a good practical system of conservancy, by which a supply of timber as well as of fuel may be ensured to future generations in these Provinces There can be no doubt, with the amount of practical knowledge possessed by the Department, and especially now that a certain number of native subordinaes have been trained to the work, and to understand the object swhich are to be kept in view, that in the succeeding eight years much more visible, if not more actual, progress will be exhibited, than in the first eight from the formation of the Department.

131. The two great points now to be attended to, are,—1*st*, to bring the Reserves, which have been marked off, into proper order; and 2*nd*, to develope the plantation system in whatever manner seems most advisable. Both these points have been fully entered into and discussed in the body of this report, and I will only say now that we have yet much to learn about both of them, and that the development of the system in regard to them will require all the attention and care, as well as intelligence, that the Officers of the Forest Department can give to it.

132. There is one great difficulty to contend with which will always more or less hamper the progress of the Department, and that is the unhealthiness of the forests. A break-down like that of Mahomed Padshaw in the Western Division is equivalent to the loss of a season's work, with the few trained men we possess; and it can never be hoped even with the greatest care that people can live in such places as Boree, Topla, Panabaras, Delakaree, and Aheree, without suffering from the effects of the malaria there; for it is notorious that the best forests are the most unhealthy ones, and that the same causes which induce more prolific vegetation make the climate more insalubrious. We fight with these forests too at a disadvantage in comparison to other Provinces, for there is no Sanitarium in the Central Provinces where Forest Officers can repair to in the non-working season to recruit their health. In this respect I may perhaps say that we are worse off than any other Province whatever; for even in Burmah, where there is no Hill station, Forest Officers can get away to sea for change of air. I trust that this point will meet with due consideration from the authorities, for it is impossible that Government should keep up supernumerary Establishments to meet breaks-down by sickness, and therefore it becomes doubly necessary to husband the health of our Officers as much as we can. In this point of view a very small amount of liberality represents the best economy; for the failure in health of our Officers *means no work from them*; and a new man in a forest which he does not know is useless for the first year he is there.

133. As I believe this is likely to be the last Forest report I may send in for these Provinces, I would desire to express how much I feel is due to Lieutenant Doveton, Lieutenant Douglas, and Mr. Jacob; and among the Natives, to Mahomed Padshaw (now broken down I fear completely in health), Shaik Moheeadeen and Shaik Ahmed, for whatever has been done in the way of progress in forest work in the Central Provinces. Nor would I omit the name of Lieutenant Forsyth, now promoted and holding a high appointment in another branch of the Administration, who has twice acted as Conservator during my absence in Europe with the greatest ability and advantage to the Department.

I have the honor to be,
Sir,
Your most obedient Servant,

G. F. PEARSON, MAJOR,
Conservator of Forests,
Central Provinces.

APPENDIX A.

MEMO. ON THE FORESTS OF THE RAMGURH TEHSEEL.

To commence at the most eastern end of the District.

TALOOQUA PERTABGURH

It is bordered on the north by the river Nerbudda, from the point where that river falls over the Kuppul Darha into the plain below, to the junction with the Chukrar river. To the east the Ummurkuntuk Hill itself may be called the boundary, as here the Talooqua runs up into the hills for a short distance up the valley of the Khurmendyl river; to the south the Meikul range, dividing the low lands of Chutteesgurh from the high lands of Ramgurh, varying in width from 10 to 25 miles, and forming the birth-place of the many rivers which water this Talooqua; from this main range run down continual spurs, forming valleys varying in extent and width to the river Nerbudda, or within a short distance of it. It is on this main range and its spurs that the sâl forests exist. The boundary to the west is the spur which divides the Mookutpore Talooqua from Pertabgurh on the west of the Chukrar and the river Mingrar, and the Chukrar itself.

The valley of the Khurmendyl river.

On both sides of this stream, which can hardly be dignified by the name of a river, there is a considerable extent of sâl forest, extending in some places well into the plain, as well as on the northern side of the valley up to a very considerable height on the hill. The whole of this valley has been once fringed with a deep belt of sâl; but it has been much destroyed by Dhya cultivation, &c., cutting for resin, as well as cleared by the people in the villages of the plain for use in the construction of their villages. Still there is much more left than is likely to be utilized for some time to come, owing to its great distance from any market. The trees here are of a very inferior description to those farther west,—just as the sâl in Mowye cannot bear comparison with that in Toplah, so this cannot be compared with that in Mowye. Many of the trees do not grow straight, and have a stunted appearance, besides being much smaller in girth than those in Ramgurh Bicchia. Besides the sâl, saj is very numerous on the sides of the hills, and some of the trees were very fine and large.

This belt of sâl and saj runs all along the side of the Ummurkuntuk Hill to the north of the valley, and round it to the Nerbudda bank. Young sâl is coming up in almost all the old Dhya sites.

On the hill to the south of the valley and all along the main range to the Chowradadur hill, sâl is plentiful, also saj. The remarks made above regarding quality apply equally here. At Chowradadur the river Toorar rises, and falling over the edge of the plateau near that place, runs through.

The valley of the Toorar.

The Tar nullah, one of its affluents, comes down from near Kurunjeea, forming another small valley, both sides of which are thickly clothed with sâl of a little better description, and falling into the Toorar near the head of the valley. There, too, on both sides sâl in extensive, some of good size and straight; still much of it is crooked and stunted, I should say the bulk of it, but I had not the time to make any close examination and merely noted it for your information. It is best towards the head of the valley, and smallest towards the end of the spur near Kurunjeea.

This valley is divided from that of the Sconee by a spur of some height running down to within a mile of the Nerbudda, where it ends abruptly. All along this spur there have been sâl forests once, but on the lower portions of it they have been long since cleared away, while towards the head of the valley there is still much left.

The valley of the Seonee.

This river rises in the most southern point of the Toolaqua in the heart of the hills, all of which are covered either with sâl or its remains; in fact there is little other timber of any sort available, and this will have to be borne in mind when the wants of the people are taken into consideration. A reference to Wroughton's Map of the Sohagpore and Ramgurh Districts will show the peculiar course of the river until it reaches Chukmeeghat. Much of this length is on the high pleateau which forms the crest of the main Meikul Range; and the sâl all along this is extensive, not large, and has been much destroyed by Dhya. It grows chiefly in belts dividing small valleys, not in one continuous line. Near Chukmeeghat the Sonterat river falls into the Seonee, and up its valley towards Chowradadur on the hills on both sides the forests are extensive, less destroyed by Dhya, and the wood seemed to be of much better quality; the trees were larger, straighter, and had not that stunted appearance which struck me so forcibly in the other valleys The cutting for Ral has done much damage; but I have done my best to stop that now. The spur on the eastern side of the Seonee about half way to the Nerbudda is also well covered with sâl which seemed of fair quality, and here too much is still standing; towards the Nerbudda it has been almost entirely cleared, and the forests that remain are small and stunted. To the west, down the river from Chukmeeghat to Schulwar, there is a fair extent of sâl as well as saj; but towards the Nerbudda it disappears, except in patches, which are none of them apparently worth much.

The valley of the Chukrar.

This river rises close by the Seonee in the same plateau, and at its source there is still some good forest left; where it falls off the plateau into the plains near the village of Dherrwul the utter destruction of the whole forests is sad to see; the hill sides have been clean swept for miles; there is a little about the village of Toorsee and at intervals all along the spur dividing this and the Seonee valley; but nothing worth keeping between Bujag and the Nerbudda, on either side of the valley, with the exception perhaps of some on the hill near the source of the Mingrar river, which forms the boundary between this and the Rameepooree Talooqua.

The Mokutpore Talooqua.

At the head of the Chukrar valley the main range of hills appears to divide, sending one range down to the south-west, forming the southern border of the Mokutpore Talooqua and Raegurh Bicchia; and another north-west, forming the boundary between Pertabgurh and Mokutpore as well as between the latter and Rameepore. The Mokutpore Talooqua may be divided into two valleys,—those of the Bormeyr and Khermeyr rivers, which run through the whole length of its open country; but at the head of the Khermeyr valley there is a considerable sized block of hills in which the Kewar river takes its rise and runs south-east into the Bormeyr. The whole valley of this river shows signs of having once been richly clothed with sâl; there is still some extent left, and much growing up which may be well worthy of attention. Between the source of the Bormeyr in the very easternmost corner of the Talooqua, and its south-western boundary—the river Aplum (itself an affluent of the Bormeyr)—the country is one network of rivers and ravines. Many of them are nameless; the Bormeyr itself has two separate courses for some distance and is clothed with sal on both sides; the Hamptee and Joargee nullah use the same, but much of the wood is large. Miles of the forest have been literally swept off the face of the earth by Dhya, till but little of the original is remaining, though, doubtless, in all the number of large trees is considerable; but the small young trees now coming up far outnumber the old. All along the valley of the Bormeyr, which from the village of Mungeyla forms the southern boundary of the Talooqua, sâl is to be found to some extent running along in a fringe both on the banks of the river and the southern face of the

The valley of the Kewar river.

The valleys of the Bormeyr and its affluents

The Aplum Johargee Hamptee &c

hills, dividing this from the valley of the Khermeyr. The depth of this varies considerably near the village of Eshurpoora; and between Anhan and Kakoo there is a very large number of trees. West of the Kuchnaree river, in the valley of which (near where it joins the Bormeyr) there is also a considerable extent of sâl to be found, the sâl forests may be said to come to an end. There is some sâl in the valley of the Bormeyr itself for some little distance farther west, and a little on the hills bordering Ghonghree and Mokutpore, but it is very little and very small. West of the Tendoo Ghat I know of none.

The valley of the Khermeyr River.

The Khermeyr.

Near the source of this river the hills all about are covered with sâl, not of large size, but with some belts of what struck me as very fair trees; and this is continued down the valley to near the village of Summapoor, where the sâl is not nearly so numerous; and what little there is, is not very good. Saj and other kinds of common wood are more plentiful; this continues all along the right bank of the river and the hills forming the border between this and the Rameepore Talooqua to the junction of the Khermeyr with the Nerbudda. All along the hills to the west after leaving Summapore there is little or no sâl timber worth speaking of; up to Ramgurh. North-west of this, near the deserted village of Jhirna, there is some, but of small size; and this part of Mokutpore may be said to have no really good timber.

The Rameepore Talooqua.

Talooqua Rameepore

This is a long narrow strip running between the Nerbudda and the range of hills above described as starting from the main range near the source of the Chukrar, running along the left bank of that river, forming the boundary between Pertabgurh and Mokutpore up to the Mingrar river, whence it takes a more westerly direction and forms the southern boundary of Rameepore. The Michrar, Herondee, and Koterae rivers rise in these hills and run across the Talooqua to the Nerbudda. At the head of the valley of the Michrar near Morhagore there is some extent of sâl, and there has been very much more, but it has been swept away by Dhya. A little lower down the valley there is still a considerable amount of sâl on the hills about Surraye, and this continues along the spur which divides the valleys of the Michrar and Mingrar for a short distance. Towards the Nerbudda it disappears completely.

The Michrar River.

The Koterae valley.

On the other side of the valley of the Michrar near Chundranee and Burnjee the sides of the hills have still a great deal of sâl on them. At the head of the Koterae river, near Aturreea and Kekarjhis, there is also a fair extent of sâl; none of it large, but all bearing the stunted appearance which I have remarked that nearly all the sâl near the Nerbudda has on the high lands of Pertabgurh and Mokutpore. Where the young trees are exposed to the full force of the storms and violent winds which visit this part of the district, in March and April, it is not surprising that the trees should be stunted and out of shape; but in these sheltered nooks, I conclude that the soil alone is the cause of their inferiority. Talooquas Chowbeesa and Mahidwanee,—in these there is literally no timber of any sort worthy of the name.

Talooqua Kutowteea.

Proposed for a Reserve.

Along the southern portion of this, on the face of the ghats, on the crest of which most of the villages lie, there are some good teak trees, and some extent of young forest in a fair state of progress; but as I know that these have lately been examined by Mr. Douglas it is needless my saying anything about them. This completes Ramgurh south of the Nerbudda.

North of the river are the Talooquas of Shahpore, Cusheekushey, Sonda, Shaepoora and Newas.

Shahpore and Kushey Sonda.

Shahpore and Kushey Sonda

To the east, and throughout the whole Talooqua in fact, the timber tree of the country is sâl, but with the exception of the valleys of the Silgee and Silghuttee, there is no extent of forest. Saj trees are numerous, and on the eastern slopes of the hills dividing Shaepoora from Shahpore, sâl is abundant; the rest throughout almost the whole Talooqua has been so destroyed by Dhya and cleared for other purposes, among others the collection of Ral, that there is little of value now remaining. On the Johila there is none, though plenty of saj and inferior kinds on the plateau above. In the valleys of the Ganjur, Gunjursee, there is some small extent of sâl, extending from Pondse to near Ramgoora, but the country is very difficult of access, the ghats being all steep and difficult, and water is scarce in the hot weather. From near Booran to the most western corner of the Talooqua Guneshpore, there are the remains of what have been once fine sâl forests, with occasional patches here and there still left. To the south along the Nerbudda there is hardly any timber at all.

Shaepoora.

The sâl tract extends for a short distance across the Shahpore border into this Talooqua, but there are no forests—they have gone long since Saj is plentiful throughout the Talooqua, and to the westward near the Sankul river on the hills to the north of it there is some extent of teak, but only over a comparatively small area; it begins abruptly and it ends equally so. On one deserted village site, Bhurota, which will be reserved *in toto*, as there are no inhabitants, I had the trees counted, and found there were 200 large trees and 40 small; some of the former were really of large size. I have brought the patch to the notice of the Assistant Conservator of Forests for this Division as being well worthy of attention. Throughout the rest of the Talooqua saj is the prevailing wood, though there is plenty of inferior kinds also, but there are certainly no other forests deserving much attention.

Will be reserved.

Neewas.

Along the Gour Nuddy, and the western border of the Talooqua there is a sprinkling of teak with a few good trees remaining, but they are few and far between, as all the best has long since found its way into Jubbulpore. Still there is I think sufficient promise for the future to make the lands on the banks of that river worthy of the attention of your Department. I noted teak as growing in the lands of the following villages:—Pitkooly, Rerum, Bundhonee, Hurdoolee, Hurree Singoree, and Goara. The first four are on the borders of the Neewas Talooqua and Jubbulpore district; the fifth is on a small affluent to the Gowur close to Rerum; and the sixth is close to Hurdoolee.

A Reserve is proposed here.

There has been some sâl in the lands of Dulka Surraee, on the road between Neewas and Shaepoora, and there are still a few trees left near there, but no real forests.

Throughout the rest of the Talooqua, mowah is the chief wood; saj is abundant, some extent of hurdoo, and quantities of the common inferior kinds. There is not one real forest in the whole Talooqua. It will thus be seen that the best part of this Ramgurh Tehseel for timber is that farthest away from any means of communication, *i. e.* the south-eastern portion of the Pertabgurh Talooqua. The forests there are more extensive than anywhere else, though those in Mokutpore on the Khermeyr, the Keywar, and near the sources of the Bormeyr, are also well worthy of attention in my opinion.

(Signed.) H. WARD,
Officiating Settlement Officer.

(True copy)
G. F. PEARSON, *Major,*
Conservator of Forests, C. P.

No. 21.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Summary of Revenue and Expenditure in the different Divisions during the year 1867-68.

Classification	Northern Division			Southern Division			Eastern Division			Western Division			Central Divison			Total		
RECEIPTS	Rs	A	P	Rs	A	P	Rs	A	P	Rs	A	P	Rs	A	P	Rs	A	P
I Sale of timber at Depots	27 573	14	2	1 900	12	10	2 907	3	0	20 282	13	6	209	4	0	52 864	15	6
II Sale of timber removed by purchasers	7 299	7	5	1 052	15	0	..	..	..	441	13	0	8 589	9	7	17 383	13	0
III Duty on foreign timber	436	6	2	..	..	..	..	..	..	3	1	9	..	..	..	439	7	11
IV Permit fees	39 945	8	5	65 532	1	0	24 432	8	0	45 214	3	4	80 254	15	8	255 379	4	5
V Grazing dues	5 120	4	1	211	6	9	..	..	..	1 843	11	8	3 444	9	0	10 619	15	6
VI Sale of fruits &c	2 262	0	5	1 679	0	0		..	..	1 123	2	3	3 345	5	7	8 409	8	3
VII Sale of confiscated timber	651	10	3	63	5	2	..	..	..	45	15	3	321	0	0	1 081	14	5
VIII Fines and forfeitures	459	0	6	35	0	0	.	..	..	140	11	0	388	13	6	1 023	9	0
IX Miscellaneous	196	1	8	10	0	0	1	2	0	1 906	14	2	174	15	3	2 289	1	1
Total Receipts	83 944	5	1	70 484	8	9	27 340	13	0	71 002	5	11	96 719	8	7	3 49 491	9	4
CONSERVANCY AND WORKING.																		
I Timber expenses	11 810	3	4	17 364	2	9	7 275	9	0	21 484	3	5	825	5	8	58 759	8	2
II Purchases of Stock and Cattle	3 212	10	9	1 281	11	0	1 042	9	8	13 243	3	8	2 657	15	2	21 438	2	3
III Feed and keep of Cattle ..	311	10	1	2 800	10	8	704	5	4	852	5	0	612	10	0	5 317	9	1
IV Rent of leased Forests	..	..	..	209	3	8	..	..	..	..	..	..	..	..	..	209	3	8
V Charges in collecting revenue on grass, &c	..	..		..	..	..	..	..	..	..	..	..	150	0	0	150	0	0
VI Plantations	4 227	10	2	108	1	8	150	10	6	5 584	11	0	229	12	2	10 300	13	6
VII Forest Work	1 402	1	6	619	2	10	125	8	0	1 095	10	11	51	14	9	3 294	6	0
VIII Forest Survey	..	..	..	..	..	..	867	2	0	..	..	..	..	..	..	867	2	0
IX Experiments on Timber	..	..	..	..	..	..		..	0	..	..	..	..	..	..	..	..	..
X Communications and Buildings	9 000	3	0	368	4	3	247	1	2	890	6	6	2 225	9	0	12 731	7	11
Total Conservancy & Working ..	29 994	6	10	22 757	4	10	10 412	12	8	43 150	8	6	6 753	2	9	1 13 068	4	7
ESTABLISHMENTS																		
I Salaries	15 585	5	4	27 151	12	8	7 745	1	7	21 327	14	2	8 905	0	0	80 715	1	9
II Allowances	1 747	2	1	6 031	10	10	895	12	0	2 477	9	3	1 215	8	1	12 367	10	3
III Contingencies	742	3	9	2 942	14	1	333	11	0	1 525	10	3	403	10	4	5 948	1	5
Total Establishments ..	18 074	11	2	36 126	5	7	8 974	8	7	25 331	1	8	10 524	2	5	99 030	13	5
Grand Total Expenditure ..	48 069	2	0	58 883	10	5	19 387	6	3	68 481	10	2	17 277	5	2	2 12 099	2	0

No. 22.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Abstract Account of the Cash transactions of the Forest Department in the Central Provinces for the year 1867-68.

DR.

YEAR.	HEADS OF ACCOUNT.	Rs.	A.	P.
	To Cash in hand on 1st April 1867	11,066	6	3
	„ Revenue received	*3,49,491	9	4
	„ Remittances from State Treasuries	2,14,947	9	10
	„ Deposits	...	..	..
	„ Advances recovered	14,517	4	10
	„ Assessed Taxes. License Tax	420	0	0
	MILITARY DEPARTMENT, (*Bengal.*)			
	„ Stamp Fees	15	0	0
	GOVERNMENT OF INDIA.			
	Military Fund 108-0-0 / Orphan „ 120-0-0 ..	228	0	0
	GOVERNMENT OF MADRAS.			
	Military Fund	390	15	0
	Total	5,91,076	13	3

CR.

YEAR.	HEADS OF ACCOUNT.	Rs.	A.	P.
	By Expenditure of the Department	2,12,099	2	0
	„ Remittances to State Treasuries	†3,48,974	4	7
	„ Repayments of Deposits	..	..	..
	„ Advances made	14,673	3	3
	„ Refunds of Revenue	..	..	..
	„ Cash Balance in hand on 31st March 1868 ...	15,330	3	5
	Total	5,91,076	13	3

*This includes a sum of Rs. 29,575-6-1, debited to the Department Public Works, by transfer on account of Timber supplied to that Department.

†This includes a sum of Rs. 29,575-6-1, on account of credit afforded by transfer in the accounts of the Department Public Works, Central Provinces, for timber supplied to that Department.

No. 23.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers.

DIVISION.	Department Debtor.			Department Creditor.			Balance due.	
	At commencement of year.	Recoveries in cash, and value of supplies and work done during year.	At close of year.	At commencement of year.	Payments made during year.	At close of year	To Department (outstandings)	By Department (liabilities)
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Northern Division	..	6,665 11 3	6,665 11 3	1,393 15 0	5,477 2 3	6,871 1 3	205 6 0	..
Southern Do.	...	4,432 9 10	4,432 9 10	...	14,200 0 0	14,200 0 0	9,767 6 2	..
Eastern Do.	..	...	...	18 9 10	3,113 1 4	3,131 11 2	3,131 11 2	...
Western Do.	...	44,174 7 2	44,174 7 2	11,106 3 1	50,516 5 0	61,622 8 1	17,448 0 11	...
Central Do.	..	3,472 8 0	3,472 8 0	1,020 0 0	2,952 8 0	3,972 8 0	500 0 0	...
Forest Revenue	..	10,271 6 0	10,271 6 0	10,271 6 0	7,059 15 11	17,331 5 11	7,059 15 11	...
Total Rupees. ..	..	69,016 10 3	69,016 10 3	23,810 1 11	83,3 9 0 6	1,07,129 2 5	38,112 8 2	...

No. 24.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement of Timber brought to Depots from the different Forest Divisions during 1867-68.

Division.	Forest.	Description of Timber	Pieces.	Cubic feet.	Totals of each Division.		Remarks.
					Pieces.	Cubic feet.	
Northern Division	Singarpore.	Teak.	1,312	5,030	..	..	
"	Chirka Chapa.	"	154	1,230	...	..	
"	Sugra Pahar.	"	500	7,500	...	..	
"	Gurrakota.	"	1,778	13,881	3,744	27,641	
Southern Division	Aheree.	"	1,358	38,047	..	..	
"	"	Sissoo.	29	685	1,387	38,732	
Eastern Division	Panabaras.	Teak.	46	1,049	..	..	
"	Kumturra Nulla.	Sâl.	824	10,896	870	11,945	
Western Division	Boree	Teak.	918	9,927	..	...	
"	Mattardeo.	"	491	3,801	..	...	
"	Sowleegurh.	"	202	2,382	..	..	
"	"	Teak Sleepers.	863	3,452	..	...	
"	Boree.	"	1,549	6,196	...	..	
"	Delakaree.	Sâl Sleepers.	4,907	19,628	8,930	45,386	
Central Division	Doomah.	Teak Sleepers.	185	740	185	740	
Total ..	..	...	...	..	15,116	124,444	

No. 25.

FOREST DEPARTMENT, CENTRAL PROVINCES

ANNUAL TIMBER ACCOUNT FOR 1867-68.

PARTICULARS.			PIECES.	TOTAL
I.—Stock in hand at the following Depots at the commencement of the year.				
Northern Division.	Bijiragogurh	...	5,050	
"	Chowareegogurh	...	924	
"	Singarpore	...	168	
"	Goaree Ghat	...	3,581	
"	Behra Ghat	...	249	
				9,972
Logs.				
Western Division.	Kaleebheet	..	124	
"	Rajaboraree	..	2,036	
"	Bowergurh	..	4,492	
"	Sowleegurh	..	4,298	
"	Kuttunga	..	311	
"	Boree	..	7,245	
"	Mattardeo	..	146	
Bamboos.				
"	Kaleebheet	...	18,000	
Poles.				
"	Hurdah	...	3,475	
Different kinds of wood.				
"	Sowleegurh	...	4,510	
Sleepers.				
"	Bowergurh	...	1,166	
"	Sowleegurh	...	1,151	
"	Kuttunga	...	3,466	
"	Boree	...	47	
"	Delakaree	...	791	
				51,858
Central Division.	Doomah			
	Teak stumps	...		800
		Total..		62,630

PARTICULARS.			PIECES.	TOTAL.
	Brought over	..	..	7,764
Logs.				
Western Division	Rejected	..	102	
	Cut into Sleepers	..	434	
Different sorts.				
"	Rejected	..	4,510	
Sleepers.				
"	Burnt	..	193	
" (Jungle wood)	Rejected	..	5,216	
"	Bamboos	..	18,000	
Logs				
Central Division	Converted into Sleepers	..	185	
"	Rejected	..	46	
				30,117
				37,881
III.—Stock in hand at the close of the year at the following Depots:..				
Northern Division	Bijiragogurh	..	3,415	
"	Chowareegogurh	..	46	
"	Chirka Chappa	..	34	
"	Sugra Pahar	..	500	
"	Mundla	..	64	
"	Behra Ghat	..	249	
"	Goaree Ghat	..	3,900	
"	Gurrakota	..	154	
"	Jubbulpore	..	128	
				8,490
Southern Division.	Aheree Teak	..	1,278	
	Sissoo	..	26	
				1,304

II.—Timber received at Depots from the Forests during 1867-68, as per Statement No. 24.

Northern Division	...	3,744	
Southern "	...	1,387	
Eastern "	...	870	
Western " Logs.	...	1,611	
" Sleepers	...	7,319	
Central "	...	183	
			15,116
Total pieces	...		77,746

I.—Timber removed by purchasers from Depots.

Northern Division	Teak logs	..	4,395	
Southern "	Teak and Sissoo	..	83	
Western "	Teak logs	..	633	
" "	Teak poles	..	750	
" "	Sleepers	..	1,903	
				7,764

II.—Timber lost.

Northern Division	Floating works &c.,	..	90	
"	Bijiragogurh Sleepers, &c, burnt.	..	738	
"	Goaree Ghat	..	3	
	Carried forward	...	..	7,764

Eastern Division		Berampooree Teak	..	46
"		Kumturra Nulla Sal	...	824
				870
	Logs			
Western Division		Kaleebheet	...	258
"		Rajaboraree	..	823
"		Bowergurh	...	4,443
"		Sowleegurh	...	3,986
"		Kuttunga	...	311
"		Boree	..	7,723
"		Mattardeo	...	637
"		Hurda	...	913
	Poles.			
"		Hurdah	...	2,725
	Sleepers.			
Western Division		Bowergurh	...	737
"		Sowleegurh	...	146
"		Boree	...	47
"		Delakaree	..	5,698
				28,447
Central Division		Teak stumps	..	569
"		Sleepers	...	185
				754
		Total Pieces	..	77,746

Abstract of Stock in hand at the close of the year 1867-68, *estimated as follows :—*

Division.	Number of Pieces.	Cubic feet.	Rate. Rs.	A.	P.	Amount. Rs.	A.	P.
Northern Division - - - -	8,490	44,103	@ 0	15	4	42,285	2	0
Southern do. - - - -	1,304	36,904	@ 0	12	0	27,678	0	0
Eastern do. - - - -	870	11,945	@ 1	1	9	10,794	8	0
Western do. - - - -	28,447	153,406	@ 0	15	11	152,235	6	0
Central do. - - - -	754	3,016	@ 0	10	0	1.885	0	0
Total - -	39,865	249,374	@ 0	15	¾	2,34,878	0	0

No. 26.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement showing the amount realized on account of the different classes of timber sold during 1867-68.

DIVISIONS	Number of Logs sold.	Cubical Contents.	Amount realized and due on account of timber sold.			Average amount per Log.			Average Cubical contents of Logs.		Average amount per 100 cubic feet.		
		Cubic feet.	Rs.	A.	P.	Rs.	A.	P.	*Cubic ft.*	*ins.*	Rs.	A.	P.
Northern Division.	4,395	21,816	27,537	8	1	6	4	3	4	11½	126	3	7
Southern do.	83	1,828	3,998	12	0	48	2	10	22	0	219	8	0
Eastern do.	..	..	..	..	...	...	..	..	..		..	..	..
Western do. logs 633 Do. 1903 sleepers, 635 Logs.	1,268	13,426	21,292	7	6	16	12	9	10	7	158	9	4
Total ..	5,746	37,070	52,828	11	7	9	3	1	6	5	142	8	1

REMARKS.	Pieces.
Timber sold in previous years remaining unremoved at the commencement of the year ..	..
Timber sold during year ..	5,746
Total ..	5,746
Timber remaining unremoved at the close of the year ..	..
Balance removed from Depôts by purchasers during the year ..	5,746

Deduct amount due but not realized during the year..	7,059	15	11
Balance ...	45,768	11	8
Add sale of 750 teak poles in Western division ...	75	0	0
Collected by District Officers.	6,900	9	2
Add amount realized on account of former years.	120	10	8
Total shown as revenue on account of timber sales ..	52,864	15	6

No. 27.

FOREST DEPARTMENT, CENTRAL PROVINCES.

STATEMENT showing the amount expended on account of Timber received from the different Forest Divisions during 1867-1868.

Name of Division.	Number of Logs.	Cubical contents.	Timber expenses.			Conservancy expenses, cost of Establishment, &c., of the Department excluding Direction.			Total amount expended, excluding Direction.			Average amount paid per Log.			Average Cubical contents per Log.	Average amount paid per 100 cubic feet.		
		Cubic feet.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Cubic feet.	Rs.	A.	P.
Northern Division	*5,816	40,373	11,810	3	4	18,129	7	4	29,939	10	8	5	2	4	6·11	74	2	5
Southern Do.	1,387	38,732	17,364	2	9	8,465	4	7	25,829	7	4	18	9	11	27·11	66	10	11
Eastern Do.	870	11,945	7,275	9	0	6,055	14	7	13,331	7	7	15	5	2	13·8	111	9	7
Western Do. Do. Logs 1611 Do. 7,319 sleepers=logs 2,640	* 4,251	45,386	21,484	3	5	23,498	11	4	44,982	14	9	10	6	11	10·8	99	1	9
Central Do.	185	740	825	5	8	8,225	15	9	9,051	5	5	48	14	9	4·	1,223	1	8
Total ...	12,509	137,176	58,759	8	2	64,375	5	7	1,23,134	13	9							
Add Direction charges ..	...	..	..	..	..	..	...	...	12,294	7	3							
Grand Total ..	12,509	1,37,176	58,759	8	2	64,375	5	7	1,35,429	5	0	10	13	2	10·11	98	11	7

REMARKS.

Abstract rates per 100 cubic feet.

	1867-68 Rs.	A.	P.	1866 67. Rs.	A.	P.
Timber expenses	42	13	4	32	12	10
Conservancy and Establishment	46	14	10	48	9	0
Direction	8	15	5	13	4	9
Total.	98	11	7	94	10	7

*2072 Logs are included in this Account, portion of the expenditure of the year being on account of this transport of the timber from Mundla Depots to Goareeghat.

No. 28.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Account of Forest Revenue for the year 1867-68.

	Rs.
Receipts	3,48,974-4-7
Expenditure	2,12,099-2-0
Surplus	1,36,875-2-7
Add difference between Assets and Liabilities at the commencement and close of the year	20,233-6-3
Net Revenue	1,57,108-8-10

Detail of difference between Assets and Liabilities at the commencement and close of the year.

	At the commencement of the year.	At the close of the year.	Difference. In favour of the year.	Difference. Against the year.
	Rs.	Rs.	Rs.	Rs.
Value of timber and other stock	2,28,947-0-0	2,34,878-0-0	5,931-0-0	"
Outstandings on account of sales and excess payments to Contractors	23,810-1-11	38,112-8-2	14,302-6-3	"
Total Assets.. ..	2,52,757-1-11	2,72,990-8-2	20,233-6-3	"
Deduct Liabilities.. ..				
Balance.. ..	"	"	20,233-6-3	"

No. $\frac{1967}{216}$

FROM

THE SECRETARY TO THE CHIEF COMMISSIONER,

Central Provinces.

To

THE OFFG. CONSERVATOR OF FORESTS,

Central Provinces.

Dated Nagpore, 5th July 1869.

SIR,

I am directed to acknowledge the receipt of your Forest Report for 1868-69, in remarking upon which the Chief Commissioner will follow the order adopted by you.

2. The Forest Department has undoubtedly suffered by the unavoidable changes and movements of its members during the past year, and the Chief Commissioner fully appreciates the difficulties which you have had to encounter in being called upon, at the last moment, to draw up a report of transactions which you had not yourself controlled.

NORTHERN DIVISION.

3. You commence your remarks, in accordance with the instructions of the Government of India, by a brief notice of the general characteristics of, and principal places in the Division. In future the Chief Commissioner thinks it would be better that these notices should be confined to the kind of data likely to be found useful in illustrating a Forest report, as, for instance, information with regard to the physical character of the country and the facilities for carriage, the habits of the people as bearing upon consumption of forest produce and on the supply of labour, and such like details. Descriptions of antiquarian and general interest, unless they contain new matter, may ordinarily be allowed to retain their apposite place in the pages of the Gazetteer.

4. In this Division there are at present eight reserved forests, but the supply of teak, except in the smaller blocks situated on comparatively level and fertile ground, such as Singrampore and Gurhakotah, can hardly yet be called even promising. Still, as the land occupied by these reserves is too remote and broken to be of much value for other purposes, there need be no occasion for giving up the experiment hastily. All these forest blocks are reported by you to be clearly and satisfactorily demarcated, and this first step will, in itself,

go far towards facilitating conservancy. By far the most important timber reserves in this Division, however, are those hitherto known as the Toplah sâl forests, or as you more correctly describe them, the sâl forests on the Meikul range. There has unfortunately been much delay in commencing the survey of these valuable timber-bearing tracts, but they are so extensive in range and so much mixed up with open country that the operation is undoubtedly one of much difficulty. Still the Chief Commissioner will hope to receive from you at an early date the special report of which you speak.

5. The Chief Commissioner regrets that planting operations should not have been more successful in 1868-69 than in the preceding year. Except, however, at Ayree, on which you promise a separate report, the failure seems to have been a good deal owing to the scantiness of the water-supply in a year of drought. He begs that the subject may continue to engage your most serious attention.

6. The attempts to supply the timber market at Jubbulpore from the Mundla forests, must, the Chief Commissioner thinks, be regarded rather as preliminary and experimental than as amounting to a complete or systematic commencement. Much has yet to be done before the comparative value of the different traffic routes, whether by land or water, can be fully determined, and still more to open the existing lines and to economise the cost of carriage by them. And giving full weight to all these difficulties the Chief Commissioner quite believes that it might not have been easy to do more than has been done in the Northern Division towards delivery of the required number of sleepers. Ten thousand were promised from this Division of which some four thousand only had been delivered at Jubbulpore, but these were reported to be of excellent quality, and if you are able to continue your consignments at the rate of 2,000 sleepers a month, the required number will soon be completed.

Central Division.

7. The Chief Commissioner is glad to learn that 60 miles of the Divisional block lines of the Sautpoora Reserve have been cleared, but he cannot think it satisfactory that no information should be given regarding the progress of the departmental survey and other measures connected with the administration of this reserve, and I am to request that the report for which you have called on the subject may be submitted without delay.

Eastern Division.

8. There is little to remark upon in this Division. Carriage is still so costly, and so much of the country is under wood of some kind that good financial results cannot yet be expected. In the meantime the Chief Commissioner hopes you will do all you can to increase the resources of the reserves in which it would appear that plantations had been more successful than in other parts of the Province. It is unfortunate that more should not have been done towards the internal demarcation of the Panabaras Forest, quite the most import-

ant in this Division; but Mr. Morris admits that the want of a European Assistant was a great drawback. The Chief Commissioner hopes you will be able before long to record really substantial progress in the establishment of this forest.

SOUTHERN DIVISION.

9. In Aheree much better progress has been made than in the adjacent forest of Panabaras towards classifying and valuing timber. So far the results seem fairly favourable, but it may be premature to pronounce on this point until felling operations are undertaken. The Chief Commissioner would wish to have further details regarding the system of plantation in this Division, to which you refer in your 261st paragraph. Captain Jarrett should also be called upon for full details of outlay to supply the deficiencies noted in your 267th paragraph.

WESTERN DIVISION.

10. It is in this Division that the changes and movements of Officers have been most felt. Lieut. Doveton, the Conservator of Forests, who, from having himself held charge of them as Deputy Conservator, was well acquainted with the Western Forests, was unfortunately obliged to leave India owing to severe illness, at the very close of the year. Captain Rogers, in charge of the Division, resigned his appointment shortly afterwards. And Mr. Berwyke, to whom was entrusted the important duty of supervising the preparation of sleepers at Delakaree, was found to be incompetent and his services were dispensed with. Under these circumstances, much as it is to be regretted that the information regarding this Division should be so scanty, the Chief Commissioner can hardly feel surprise at the omissions which you point out. Fortunately Dr. Brandis, Inspector General of Forests, visited this Division shortly before the close of the year, and from his report many important particulars bearing upon the present condition of the Western Forests may be gathered. The point on which Dr. Brandis lays chief stress is the successful exclusion of fires from the Boree Reserve for four years. You admit the advantages of this measure as enumerated by him, but you question the advisability of applying it generally. The Chief Commissioner concurs with you in thinking that the cost of guarding inferior forests against fire may not repay the results, but as each year it becomes more and more clear that really favoured localities for the production of timber are few and infrequent, he can hardly doubt that in every tract really deserving the name of a first class forest the most rigid precautions should be taken against the spread of fire.

11. In commenting on the administration of this Division the Chief Commissioner is obliged to notice with dissatisfaction the failure to provide sleepers for the G. I. P. Railway. It was caluclated that some 15,000 sleepers could have been supplied from the Western Forests for the unopened portion of the line, and the Conservator promised that no trifling difficulties should be allowed to stand in the

way of these expectations. The result of the year's operations has, however, been most disappointing, and though, in the absence of Lieut. Doveton, the Chief Commissioner will not condemn the action of the department too unreservedly, he can hardly doubt that sounder and more systematic supervision might have remedied many of the evils occasioned by the inefficiency of the Executive Officer employed. Mr. Morris hopes that you will use your utmost endeavours to make up for the shortcomings of the past year, and that the railway authorities may have no cause to plead want of sleepers as a reason for delay in their operations.

Unreserved Forests.

12. Some progress has been made in settling the important questions connected with Unreserved Forest administration, which were mentioned in last year's Review. Though the principle on which the Chief Commissioner's instructions were addressed to Deputy Commissioners was that the system in each district should be adapted to the people, and not that the people should be subjected to a uniform and invariable system, there appeared to be little doubt that as a general rule commutation might be substituted with advantage for the present farming system. The Chief Commissioner thinks you are mistaken in saying that the commutation system has not met with any very general adoption. There are so many important collateral questions to be considered, and so many unforeseen difficulties to be encountered, before a new system, whose advantages and disadvantages are only known theoretically, can be introduced with confidence, that the Chief Commissioner has not urged district officers to very rapid action, and has promoted rather than discouraged the full discussion of all doubtful points. Still after a thorough consideration of all preliminary questions, a sound and simple system of commutation has been agreed upon for the Chutteesgurh Division, and will very shortly be brought into action. In Chanda the Deputy Commissioner had introduced commutation successfully before the issue of the Chief Commissioner's orders. In other districts enquiries are still being pursued, and it seems to be pretty well decided that the farming system can only be retained in those parts of the Province where the population is exceptionally advanced in intelligence and means.

13. The collections under this head have fallen off from Rs.2,72,302 to Rs. 2,49,162, the total decrease being Rs. 23,140. Much of this decrease is however nominal, as the collections for 1867-68 were a good deal swelled by the realisation of outstanding balances. A large proportion of the remaining deficit is accounted for by remissions to contractors in the Chutteesgurh Division to compensate them for allowing the poorer classes to gather jungle fruits without payment. The unfavourable season has also affected the collections in other parts of the Province, and the area from which forest revenue is realised has been reduced by the grant of clearance leases. Allowing for all these influences, the amount of falling off which is not yet thoroughly explained, is small. The Commissioners of Divi-

sions should, however, specially scrutinise the working of the present system in Nimar, Baitool, Chanda, Bhundara, and Mundla. In the latter district there have been special causes at work to reduce the receipts, in addition to the injurious effects of drought, and the Chief Commissioner does not regret so much of the loss of income as is fairly attributable to the measures adopted for the relief of the Bygahs and other wild tribes. It may be here remarked that the system adopted by Captain Ward of confining these unsettled cultivators within fixed but liberal limits, has received the Chief Commissioner's approval, and seem to be the most practicable method of reclaiming them to more civilised habits.

14. The financial results of the year are summarised in the following table :—

Credit.

Cash Receipts	Rs.	3,51,013	12	5
Timber in hand	„	3,23,701	6	4
Outstanding debts at end of year	„	55,556	6	1
Total ...	Rs.	7,30,271	8	10

Debit.

Stock	Rs.	2,34,878	0	0
Outstanding debts at beginning of year	„	38,112	8	2
Expenditure	„	2,94,654	12	1
Balance in favour	„	1,62,626	4	7
Total ...	Rs.	7,30,271	8	10

Thus the cash recipts increased since last year, and the stock of timber in hand is also considerably larger. On the other hand the expenditure has been much heavier. I am to request that you will closely scrutinise and explain the considerable increase under the heads "Timber expenses," "Feed of cattle," "Charges of collecting revenue on grass, &c." and "Forest work." On the other hand, the falling off of revenue under "Permit fees," should not be allowed to pass without comment.

15. In conclusion I am to observe that though the Chief Commissioner has with regret been obliged to notice the shortcomings in the Western Divison, for which the Conservator of Forests must be held largely responsible, Mr. Morris is fully sensible that Lieut. Doveton has paid with his health for his devotion to his new duties, and that his failure in one branch of his duties has been compensated for by success in other respects. To yourself the Chief Commissioner's acknowledgments are due for your successful exertions in the Northern Division. Captain Jarrett has also done good work in the Southern Division, and Mr. Brereton appears to have been an efficient Assistant to him. The merits of Darogah Sheikh Mohee-ood-deen have been honourably recognised by his appointment as an Assistant

Conservator. The Chief Commissioner regrets that you have not occupied your present office long enough to be able to bring forward with confidence the names of other subordinate officials who merit notice, but he will be glad to receive communications from you on the subject as you become better acquainted with the Officers of your Department, and as opportunity arises.

I have the honor to be,

Sir,

Your most obedient Servant.

C. GRANT,

Secretary.

No. 335 of 1869-70.

FROM

THE OFFG. CONSERVATOR OF FORESTS,

Central Provinces.

TO

THE SECRETARY TO THE CHIEF COMMISSIONER,

Central Provinces.

Dated Nagpore, the 22nd June 1869.

SIR,

In submitting the general Forest report for 1868-69 I would observe that as it is now so long overdue, and there are so many other important questions remaining undisposed of in consequence of the sudden illness and departure for Europe of Lieut. Doveton, all of which demand my earliest attention, I shall confine the report within the narrowest limits which will admit of my laying fully before you the season's proceedings, and furnishing such details as the information at my disposal enables me to do. I shall continue the system of arrangement adopted by Major Pearson in dealing with each Division separately, adhering as far as practicable to the orders issued for the re-arrangement of headings in the annual Administration reports of the Forest Department under Circular No. 18 of the Government of India, dated Simla, 4th November 1868.

NORTHERN DIVISION.

Introduction, descriptive and statistical.

Jubbulpore district.

2. Jubbulpore lies between 22° 40′ and 24° 8′ north latitude, and 81° 6′ and 79° 35′ east longitude. It contains an area of 4,397 square miles, with a population of 538,358 souls, or 148 per mile of the whole area. Of three Tehseels of Jubbulpore, Sehora, and Sleemanabad, 738,347 acres are under cultivation, of which not 1-60th is irrigated; the number in all three is 2,435. The barren waste amounts to 886,221 acres, the balance is either fallow or fit for cultivation; and the total revenue amounts to Rs. 6,95,634.

3. Bijiragogurh contains an area of 750 square miles, with a population of 81,843. The land revenue is about Rs. 50,000.

4. The whole of the imports were valued in 1864-65 at Rs. 44,65,806, and the exports at Rs. 20,87,555.

5. Further statistics are to be found in Sir R. Temple's Minute on the Trade and Resources of the Central Provinces for that year.

Bijiragogurh Forests.

6. The reserved tracts are in three detached portions, the extent of which is 19,736 acres. The whole has been finally demarcated by this Department, and surveyed and mapped by the Revenue Survey.

7. Here commences the great belt of sál which renders the Central Provinces famous.

Moorwara and Bilheri.

8. Moorwara and Bilheri are the only towns of importance, in addition to Bijiragogurh itself.

9. The former contains about 418 houses and 1,735 inhabitants, chiefly agriculturists. Bilheri is said to be in all probability one of the most ancient towns in the district.

Bijiragogurh City.

10. Bijiragogurh is also ancient: there is a handsome but comparatively modern fort. The trade is small and population scanty, partly owing to the nature of the soil and partly to the depressing nature of the Native rule.

Singrampore forest.

11. At Singrampore is another forest reserved for teak. It is about 36 miles from Jubbulpore on the Saugor road, and its area is about 8 square miles It contains no large timber, but a large proportion of small trees of great promise.

12. The district is not so heavily timbered as others, and although quite sufficiently so to supply all local demands for the commoner sorts of timber, it is entirely dependent on foreign sources for the supply of the more valuable classes.

13. There are several places of attraction in the district, but no towns of such importance as to demand special notice.

Gurrah.

14. The traditions and history of the old town of Gurrah are, although obscure, most interesting. It was originally the capital of the Gond kingdom of Gurrah-Mundla, is very ancient, and supposed to have existed prior to the Christian era.

Dumoh district.

15. Dumoh lies between north latitude 23° and 24° 50′, and east longitude 79° 80′. It contains an area of 2,412 square miles, and the population is about 262,641, or 107 to the mile. Of the above area there are under cultivation 385,740 acres; fit for cultivation 453,200 acres, and waste 705,531.

16. The total number of villages is 1,250. The total revenue was Rs. 2,91,538, of which Rs. 2,50,812 was land revenue.

Murriadoh forest.

17. At Murriadoh is the only portion of forest in this district which has attracted attention It contains an area of about 2 square miles, and has some teak in it. It is managed by the district establishment.

18 There are no places calling for special notice, and from the general dissemination of jungle it cannot be noted that the inhabitants are dependent on any particular source for their supplies of timber or forest produce.

Saugor district.

19. Saugor lies between north latitude 23° 10′ and 24° 30′, and east longitude 78° 10′ and 79° 25′, contains an area of 3,939 square miles, and population of about 522,700 souls.

20. Of the above area 641,110 acres are under cultivation, 4,441,442 acres suitable for cultivation, and waste 410,799 acres. The total number of villages is 2,004, and the total imperial revenue was Rs. 14,68,101.

Gurrakotah and Tigora forests.

21. The rumna at Gurrakotah and a small tract at Tigora are the only portions of forest land worthy of notice, and the latter is very insignificant.

22. The former is a teak tract in area about 6 square miles. It is about 30 miles from Saugor, near the populous town of Gurrakotah. The timber, having been to some extent protected, for a long period under Native rule,—although I should say never allowed to attain large dimensions,— is abundant and of much promise. Eventually it will doubtless yield, if not an extensive, at least a valuable supply.

23. The situation, being much enhanced by the beautiful ruins of a splendid summer palace built by Raja Murdun Singh within the present century, although its appearance would warrant one in judging it to be of much more ancient date, is a very charming one, and was taken advantage of by Sir Herbert Maddox, Agent to the Governor General, who built in 1823 a very excellent and permanent bungalow there, from which there is a lovely view of the ruins above mentioned; the latter are, which is much to be regretted, fast falling to decay, but the house is in good repair and likely to continue so. There are also well laid out gardens, which, were it desirable, could easily be rendered highly productive.

Gurrakotah City.

24. The towns of Gurrakotah and Hirdanuggur being one and the same, only divided by the river Sonar, form the largest and most populous place in the district; it is about 2 miles from the rumna and bungalow.

Khorai.

25. Khorai, a large and flourishing town, is about 32 miles north-west of Saugor. It is of ancient date, but its exact origin is lost in obscurity; it is supposed to have been founded about 300 years ago. It contains about 8,757 inhabitants and is the head-quarters of a tehseel.

Kemlassa.

26. Kemlassa is also of some note, was formerly strongly fortified; it is about 42 miles north of Saugor.

Naharmow.

27. Naharmow is only noticeable as being the most elevated point in the district. It is about 30 or 32 miles south-west of Saugor and 2,324 feet above sea level.

Rahutgurh.

28. Rahutgurh is a place of considerable consequence. It is about 25 miles west of Saugor, and contains a population of about 3,426. It is situated on the banks of the Beerea, which is spanned by a magnificent bridge of 14 arches; it was built by the Department Public Works between 1858 and 1863 at a cost of Rs. 5,600. There is also a spacious dâk bungalow, and the place is a favourite resort with the residents of Saugor.

Rehlee.

29. Rehlee, the head-quarters of a tehseel, is a large and prosperous place on the banks of the Sonar, 28 miles south-east of Saugor. It contains about 3,595 inhabitants and has an elevation of 1,350 feet.

30. Education here appears to have reached an advanced stage, a most commodious building has been erected by voluntary contribution from the inhabitants of Rehlee and other adjacent towns for a school house, at which the average daily attendance of boys is 180, and girls 125.

31. Here also is an excellent and roomy bungalow with pretty garden in a most salubrious situation, which is also a frequent resort and agreeable change for the residents of Saugor.

32. There are numerous other large and populous places of ancient date and notoriety in the district, but I have only remarked on those considered most noteworthy.

33. On the whole, Saugor with its generally fertile and highly cultivated soil and plateau of 2,000 feet and upwards may be considered the most highly favoured district in the Administration.

Nursingpore district.

34. Nursingpore lies in north latitude 23,° and east longitude 70°.

35. It contains an area of 1,916 square miles, about half of which is cultivated. The population amounts to 336,000 souls, almost all Hindoos, and the total revenue is about Rs. 4,52,268.

36. The district contains three sub-divisions under Tehseeldars at Nursingpore, Gadurwara and Chowerpatha, and is richer in mineral than in either agricultural or forest wealth, an English Company having been formed to work its iron and coal.

37. The Settlement Report by C. Grant, Esquire, B. C. S., says: "The "forest produce of Nursingpore is insignificant, there is probably no district of "the Province so devoid of extensive waste land tracts

38. "Parts of the valleys of the Doodhye, Shore, Macha Rewa, Oomur, and "Sonair come legitimately under the denomination of forest land, but they do not "contain any fine timber except mowah trees, which are too valuable for pur-"poses of sustenance to allow of their being cut down.

Balaghat district.

39. Balaghat having been recently formed into a district from portions of Seonee, Bhundara, and Mundla, I cannot furnish its exact area, statistics, or population, although doubtless the information is all on record, but not easily accessible to me.

40. It lies in north latitude 22° and east longitude 80° and 81°. This district contains an enormous area of timbered country; but with the exception of the sâl forests extending along the Meikul range, and at present in a measure under reserve, there are no other forests of value; and being wild and backward even still, as compared with other districts, there are no towns of importance or places of traditional interest.

Mundla district.

41. Mundla lies between north latitude 23° 20″ and 22°, and east longitude 80° and 81° 40″. It contains an area of 5,134 square miles, with population of 187,669 or 36 souls to the mile. The district is divided into the tehseels of Mundla and Ramgurh; and the revenue amounts to about Rs. 62,864.

42. The Settlement statistics being as yet unpublished, I am unable to state the proportions of land cultivated, culturable, and unculturable.

Reserved forests.

43. The most valuable forests are under reservation; they consist of Jugmundul and Choarcegogurh for teak, and the now well known Meikul range which is covered with,—I say so without reservation,—the finest sâl forests in India, and extends from Umerkuntuk into the heart of Balaghat, a distance of perhaps 180 miles, varying in breadth from 35 to 40 miles, and even more.

44. A survey of those forests having been decided upon, further notice of them here will be better deferred.

45. The most elevated point in the district is Chowradadur, being about 3,320 feet.

46. This is about the same as Umerkuntuk, but the former falls far short of the latter in scenery and is devoid of interest, except in so much that a fine plateau and delightful climate commend it to European admiration, while Umer-

kuntuk, being the birth-place of the rivers Nerbudda and Soane, enjoys a sacred reputation equivalent, I believe, to that of any other place in India.

47. In consideration of this, it has been made over to the Rewa State, as a reward for services rendered in the Mutiny.

48. The points next in altitude are Karinjea and Mowye, respectively 2,696 and 2,560 feet. Chilpee and Rajadhar are each 2,600 and 2,480 feet, but neither of them lie within the limits of the district.

49. A melancholy interest attaches to Karinjea above mentioned, in consequence of its having been selected as the site of a German Mission, several of the members of which died from fever, and I believe exposure, within a year of their arrival. Their graves are pointed out marked with heaps of stones in the rude manner which natives generally adopt.

50. The lover of wild wood-land and ever varying scenery might revel in the whole of the eastern portion of Mundla. Here all through the hottest season in every glen flows a clear and limpid stream, and in most valleys of tolerable size a fine clear river, the evaporation from which and showers which fall at short and tolerably regular intervals so promote vegetation that from the middle of March the whole country becomes as green and fresh as though it were in Europe.

Mundla city.

51. There are few places of importance in the district. Mundla itself has some interesting traditions attached to it, and is surrounded by fortifications, but as to trade or manufactures the place is very insignificant.

Ramnuggur.

52. Ramnuggur is an ancient place with some very picturesque ruins, and being on the Nerbudda bank affords some charming views of the river.

Ramgurh.

53. Ramgurh owes its present importance to being the head-quarters of a tehseel. The place is not remarkable but its history is rather eventful.

54. No other places call for notice.

Introductory legislation.

55. The rules framed under Act VII. of 1865 remain in force without any alteration, and with the addition within the year of but one rule, to the effect that "no land within the limits of any reserved forest shall be sold or leased without sanction of the Government of India."

56. I am aware that a Bill to amend the above-mentioned Act has now almost reached maturity and become law, therefore I consider that further discussion would be misplaced, particularly as on carefully reading over the draft of the Bill with Doctor Brandis' memo. thereon, I expressed my opinion on the subject, at the request of Lieutenant Doveton, to the effect that the proposed amendment left nothing, so far as my experience went, unprovided for, or to be desired. As I apprehend Lieutenant Doveton also expressed his views on the subject, I shall pass over this heading thus cursorily, and I shall also pass the section over in reviewing the reports of the other Divisions, as nothing affecting the point has been raised.

57. I shall now proceed with the "first part special," which treats of State forests and leased forests."

HEAD II.—STATE FORESTS AND LEASED FORESTS.

SECTION I.—*Area, boundaries, and descriptive account.*

58. The State forests in the Northern division consist of Jugmundul, Choareegogurh, Burrailla, and Ayree in Mundla, Bijiragogurh and Singrampore in Jubbulpore, and Gurrakotah and Tigora in Saugor.

59. Although these forests and their condition have been reviewed by Major Pearson, yet I consider there are various points in connection with them which demand further notice.

Jugmundul Forest.

60. What is now known as Jugmundul originally consisted of a hilly tract of that name, Sugrapahar and Mircheokona.

61. These tracts were detached, but it was considered desirable as they adjoined to connect the boundaries and form one continuous forest.

62. The area is about 53 square miles and takes in the whole or a portion of the areas of 33 villages, of which only five are at present inhabited, within the limits of the forest.

63. During the year under review portions of the areas of three villages were taken up in order to secure some promising teak which had escaped notice in the original selection. This was effected through the Settlement officer by exchange.

64. Lieutenant Douglas very correctly describes the tract as consisting of a range of hills separating the valley of the Halone and Bormeyr rivers from that of the Motiaree, and I most fully concur with Major Pearson's views as to the complete exhaustion of the timber and the absolute necessity for long continued rest of the forest. However, I feel bound to add, in my opinion, the prospects of this tract proving valuable are extremely remote, as the proportion of seed-producing teak is very small; and from the deficiency of water in the hills I cannot look upon the locality as very favourably situated for natural reproduction, while the obstacles to artificial would prove insurmountable.

65. The boundary, in length about 60 miles, has been most thoroughly cleared, is kept well defined, and was selected with sound judgment.

Choareegogurh.

66. Choareegogurh is in extent about 8 square miles. It too has been accurately described more than once by both Lieutenant Douglas and Major Pearson.

67. It is similarly situated to Jugmundul as to its timber resources having been completely exhausted; the soil and formation present little variety, while the prospects of profit from its being worked are alike buried deep in dim futurity.

68. The boundary is about 18 miles in length, has been most judiciously selected, is clearly defined, regularly patrolled, and demarcated by the usual masonry pillars.

Burrailla.

69. Burrailla is referred to by Major Pearson in his report for 1867-68, as also by Lieutenant Douglas in the same year.

70. I subsequently made the final selection of the most suitable portions of the areas of eight villages and defined the boundary of the whole tract in February last. The completion of the boundary clearing, and construction of

permanent pillars had made good progress, and I had every reason to hope for the completion of the work within the open season.

71. This tract is similar in most respects to those previously noticed; if differing in any material point it is in being more thoroughly cut up and exhausted.

72. Doubtless there is a considerable scattered growth of teak on the brows of ravines and nullahs which intersect the ground in all directions and have every variety of aspect. The plants are of a stunted scrubby character, and I much doubt that this class will ever yield timber, as the country is sterile and rocky beyond the average, and almost destitute of soil and water.

Ayree.

73. Ayree is a small portion of land about 5 square miles at the junction of the Halone and Bormeyr rivers, which, being set apart and selected for teak planting, will be discussed under the 4th Section.

Bijiragogurh Forest.

74. Bijiragogurh having been described in former reports, and as I have not had an opportunity of making myself acquainted with its condition or features from personal observation, I shall pass it over, merely remarking that the forest consists of three separate blocks all of which have been finally demarcated and the permanent pillars all built. There was an outlay in the year under report of Rs. 1,001-4-0 which was incurred for the building of 21 masonry pillars, the white-washing and repairs of others, and the usual annual clearing of the growth of the rainy season from the boundaries.

75. The whole pergunnah has been surveyed and mapped by a Revenue Survey party.

Singrampore Forest.

76. Singrampore was referred to in the report for 1867-68 as a proposed reserve. Lieutenant Douglas previous to his departure selected the tract and defined the boundary.

77. The demarcation has been completed and 46 masonry pillars erected at a total cost of Rs. 937-4-3.

78. The forest is situated on the road from Jubbulpore to Saugor, about 36 miles from the former; it includes the waste land of eleven villages, and is in area 6,555 acres. From its situation, accessibility, and the promising character of the timber, I consider this tract one of immense importance and value, prospective of course, and not being of such extent or density as to be prejudical to health during the rains. It affords an excellent field for practical pruning and thinning,—an operation the advantage of which has as yet I believe not been fairly illustrated in any forest in the Administration.

79. The selection of the tract is all that could be desired, and the demarcation has been efficiently performed.

Gurrakotah Rumna.

80. Gurrakotah, in Saugor, next comes under review; its area is 6 square miles, but from its situation, in the midst of a highly cultivated country, its remoteness from teak-producing tracts, and the freedom of indigenous growth, the value of this forest must eventually far exceed any estimate which one would be justified in making at present.

81. The advantages of the locality for extending the timber by artificial means have, in my opinion, not been appreciated to the extent they deserve.

82. The character of the timber and the freedom of the indigenous growth prove the soil to be very favourable for teak. An ample supply of plants naturally

produced is available without injury to the forest. A considerable area from which teak has been excluded by the dense under-growth of Caranda Carrissa also exists; and in ordinary seasons the water-supply is abundant.

83. This forest having been described in the reports of previous years, I shall extend my remarks on it no further under this heading.

Tigora.

84. Tigora, being unaltered in all its conditions since last described, needs no comment here.

Topla.

85. As regards the Topla sâl forests or rather what might more correctly be designated the sâl forests on the Meikul range, Major Pearson's observations in his last report, as regards their reservation, apply also this season. I made an extended tour through them this open season with a view to selecting the most suitable line of boundary for the contemplated survey. I demarcated about 25 or 30 miles of it; and in laying before you the survey project I shall enter fully into all the conditions of these noble forests.

Singarpore.

86. As reference may arise should I pass the subject unnoticed relative to the other tracts, which Major Pearson in his report for 1867-68 stated it was in contemplation to reserve in the Singarpore talooqua of Mundla, I take this opportunity to say that I made in May 1868 a most careful examination of the Singarpore tract, when from the season I could form a better estimate of the value of the forest than when Lieutenant Douglas examined them, and finding the prospects and condition of the tract not such as in my opinion would warrant its being taken up for a State forest, I, in my report, placed my views before Major Pearson on the subject, and he approved of my suggestion not to reserve any portion, but suggested that the locality should be again examined at some future time when, if timber was found to promise favourably, the question should again be brought to notice.

87. When communicating with Major Pearson on the subject I was opposed to reserve this tract, on the grounds of the poverty of the timber, and I am now still more so, as I have since ascertained from the Settlement officer that the area is much intersected with land given in proprietary right, and the waste available is in both small and detached portions.

88. Keoladur adjoins Singarpore and was also noticed as a contemplated reserve.

89. There has been no opportunity to examine it this season, consequently it has not been taken up.

SECTION II.—*Requirements of the surrounding population and prescriptive rights.*

90. These questions will be discussed in the second part general in General Remarks at the conclusion of the report.

SECTION III.—*Protection.*

91. This is a question which, in so far as it signifies actual prevention of injury by cutting or other infringement of the forest laws, calls for little or no remark. To secure the above our measures are wholly preventive, and the people evince but little disposition to infringe rules in the reserved tracts.

92. As there is little or no distinction between this section and the succeeding one I feel they may with advantage be dealt with conjointly.

93. There has been now for the second season a most successful experiment in Jugmundul and Choareegogurh to exclude fires.

94. The arrangements this year were similar to those of last, as detailed by Major Pearson, with the exception that, in consequence of the unusual drought this year, the guard was entertained a month earlier.

95. With two slight exceptions fires have now been completely excluded from these tracts for two entire seasons.

96. I cannot assert that there is any result as yet perceptible, nor shall I hazard an opinion on the prospects of any.

97. A third year ought certainly to produce a change in the vegetation, and seedlings ought to start up, if such will occur within any reasonable interval. In any case all alterations shall be carefully observed and communicated.

Burrailla.

98. Burrailla not having been completely demarcated, there is no establishment placed in charge.

Bijiragogurh.

99. One Duffadar and two peons on the fixed establishment have charge of Bijiragogurh with the assistance of an additional peon who is chargeable to work. Originally there was a Jemadar employed, but this year the forests having been thrown open for grazing, in consequence of the prevailing scarcity of fodder, the services of the Jemadar were made available at Jugmundul and in supervising the fire-guard.

Singrampore.

100. Singrampore is under the charge of the Daroga at Goaree Ghat, a portion of whose establishment is detailed for the duty.

Gurrakotah and Tigora forests.

101. Gurrakotah and Tigora are in the hands of one Daroga and two peons on the regular, and three other peons on the temporary establishment.

Breaches of the Forest laws.

102. I find during the year that 30 cases were investigated, of which 26 were convicted and 4 dismissed; they were all very minor ones and consequently not severely punished.

Ayree Plantation.

103. Ayree is the situation selected for teak planting on its most extended scale, the soil and other attributes have been described by both Major Pearson and Lieutenant Douglas.

104. Mr. Grahame, the European Forester, has had the conduct of the operations from the commencement, save and except for about four months during the rains.

105. The main obstacle to success is the deficiency of water on the plateau. This it was hoped would have been overcome by sinking wells, the most favourable sites for six or seven of which were pointed out by Major Pearson. This has also been attended with comparative failure; however, the work proceeded all through this open season, being restricted to three wells which I considered offered most hope of success, and from their positions would, when complete, be found most effective.

106. The expenditure on this work alone reached within the year Rs. 1,204, and although the deepest boring had reached 38 feet yet the spring level had not been come on.

107. You may observe from Major Pearson's report that 16,827 plants were growing at close of 1867-68. There had also been an enormous quantity of seed sown, from which a large supply of plants for putting out in the rains was naturally expected. Of this seed a most infinitesimal amount ever germinated, owing, in my opinion, to its having been insufficiently and irregularly watered; and I cannot accept the theory of there being any peculiar difficulty in inducing sound teak seed to germinate, as an abundant supply of plants was raised from seed in the Eastern division where the seed was simply dibbled in and kept thoroughly saturated with water.

108. The system adopted of supplying the plants from the adjacent jungle, noticed by Major Pearson, although once in a way not seriously injurious, is, when pursued from season to season, open to strong objection.

109. 1*st*.—The usual situation of indigenous plants in a country of the character of that in the vicinity of Ayree is such as precludes almost all hope of raising them without damage.

110. 2*nd*.—They have become too matured to bear the necessary exposure and carriage, and finally the percentage of deaths proves that the proceeding tends to destroy a large number of plants of which, if left in a state of nature, at least one-fourth might be calculated upon at some future time to attain the dimensions of timber.

111. The present condition of the entire plantation may be summarised as hereafter :—

Number of plants on 1st April 1868	16,827
Number of deaths up to the planting season of 1868-69	6,493
Balance	10,334
Total number of plants put out during the season of 1868-69	31,639
Total ...	41,973
Total number of deaths up to 31st March 1869 ..	17,098
Total number of plants growing over the entire plantation	24,875

112. The progress appears most inadequate on contrast with the preceding season, and the outlay, however a large area having been cleared and undergone some preparation must be taken into consideration. But in order to show clearly what has been accomplished I give hereafter an abstract of the season's outlay roughly classified :—

Watering plants	Rs.	1,402	9	8
Buildings	„	96	7	0
Opening pits	„	772	2	8
Well-sinking	„	1,204	15	7
Clearing and trenching land for seed beds ...	„	2,051	14	0
Putting out plants	„	292	6	8
Raising cups round &c., ...	„	378	2	8
Bamboo covering for seed beds and enclosing plots already sown	„	106	8	0

Keep of cattle for watering	Rs.	85	5 1
Establishment charges	„	693	2 2
Outlay for Medical attendance	„	182	8 8
Total ...	„	7,266	2 6
Additional outlay under Heads A II. and X. but fairly chargeable to this work	Rs.	111	3 8
Total ...	Rs.	7,377	6 2

113. Although Major Pearson expressed himself rather sanguine of more success this year than was attained in 1867-68, I feel gratified to find him reserve such a difficult point as the water-supply. I consider that without some far superior source of supply than carriage on bullocks this experiment has been more than legitimately tested. While in executive charge I attempted to get up a project for obtaining an irrigation supply by means of self-acting hydraulic rams of low power, to be erected on suitable points on the banks of rivers Bormeyr and Halone. I got into communication on the subject with several Engineers and the manufacturers of these engines in London, Messrs. Owens. I have seen rams work satisfactorily in England in situations not quite dissimilar, but from the description I was able to afford of the locality (unfortunately I was only able to supply rough details) Messrs. Owens discouraged the undertaking, and recommended other machinery of which I did not sufficiently approve to apply for sanction. However, had I known the almost utter inpracticability of the well-sinking I should unhesitatingly have urged the obtaining the rams.

114. This plantation must form the subject of a separate report next open season, and unless there are much brighter prospects of success after the coming rains the operations must be abandoned.

Gurrakotah Plantation.

115. When I visited Gurrakotah in November last I observed symptoms of neglect as regarded the plantations. However, I do not consider it wilful, as the man in charge evidently had an idea that the realisation of revenue by sales of timber to the Department Public Works at Saugor was of much greater consequence than the raising of teak artificially. He also had not the means at his disposal to supply water in sufficient quantity.

116. With the exception of the river the water had, even at that early period, fallen very low in the wells, and the streams in the vicinity were completely dry. Consequently I was compelled to give orders to increase the number of bullocks for carrying water by four.

117. The operations during the year were on a very limited scale, there having been only 603 plants put out, the actual cost of which was Rs. 203-6-0, but the total expenditure reached Rs. 1,538-3-6, the details of which are shown in the following abstract:—

Watering plants and beds	Rs.	593	13 0
Opening pits	„	81	10 0
Clearing wells	„	41	2 0
Clearing grass, and tilling ground, and constructing fences	„	168	2 6
Establishment	„	545	8 0
Additional outlay under Head A. II. but finally chargeable	„	108	0 0
Total	Rs.	1,538	3 6

118. I cannot close this subject without observing that one of the points

which demands the greatest attention of the Northern Division Executive officer is the extension of this teak forest. I feel confident in holding out more hopes of success in planting operations and extending the Gurrakotah forest than any other locality with which I am acquainted.

SECTION V.—*Yield and working of forests.*

119. The sleeper operations for the Great Indian Peninsula Railway and the removal of the timber for the Department Public Works at Jubbulpore summarise the work in the sâl forests at Topla, and being on a far more extensive scale than any other timber operations in progress in this Division I shall commence this section with their details.

120. You may perceive from Major Pearson's report that his intention was to prepare 10,000 sleepers, cart them as far as Mundla, and thence raft them to Jubbulpore. It was estimated that this could be accomplished at a cost of Rs. 4 per sleeper.

121. In addition to this, which does not appear in the report for 1867-68, orders were issued for the construction of about 1,000 sleepers in the valley of the Bunjur, in order to test the practicability of using that river as an outlet for the timber, which is so abundant along its banks. This work was accordingly commenced early in this open season, but on making a careful examination of the river bed I ascertained that in consequence of a very preciptious barrier, which evidently had escaped previous notice, the utilisation of the river as a means of conveyance is quite impracticable without the removal of this obstruction,—a proceeding which from its magnitude and the heavy expense it would entail I could not for the present advocate. I therefore stopped the operations, carted the sleepers into Mundla, and transferred the working party to Topla, in the vicinity of which place all our energies were applied and the working parties concentrated, the result of which I shall now proceed with.

122. Within the year 6,644 sleepers were completed. From that number, in compliance with subsequent orders, 1,456 were carted to Jubbulpore, 388 having been delivered by raft previously, thus making a total of 1,844.

123. There were also collected at the rafting depôt near Mundla and in course of removal by cart to Jubbulpore 2,972, while they were being turned out in the forests at the rate of 2,100 per mensem.

124. The cost of actual construction reached Rs. 1-14-6 per sleeper, and delivered by cart in Jubbulpore they cost within a fraction of Rs. 5-10-0. I estimated Rs. 5-3-0 as the probable price, but really the work was attended with such large and various incidental charges, and the dreadfully bad condition of the road from Mundla to Jubbulpore, rendered it so imperative to hold out strong inducements to cart owners, and pay such rates as would be remunerative, that I was not surprised to find the estimate exceeded. However, there were good grounds to expect that as the work progressed and the sawyers become more skilled the above rate for construction would decrease.

125. I shall not enter here at more length into the difficulties that have been overcome in the organisation of these operations, but make the whole a subject for report, setting forth the results up to the close of the working season, and I would beg that it be borne in mind that this outline of the progress only shows what has been accomplished in the earliest and most expensive stages of the work, and necessarily does not show it in the most favourable light.

126. But for the failure of an European firm in Jubbulpore, to whom I let

the carriage contract, a much larger number of sleepers would have reached the rafting depot at Mundla, and the firm having become bankrupt I did not propose legal proceedings.

127. On it becoming known in the Seonee and neighbouring districts that there would be a large demand for carriage for these works, and I imagine owing to the prevailing scarcity this season, numbers of cart-owners flocked in ; and in order to find them employment, pending the reply of the contractors above mentioned, I had 256 second class logs, which had been lying at Topla for some time and 1,339 pieces of the timber sawed from the logs in sleeper-making, conveyed to Mundla.

128. This timber will prove useful and supply a large demand which must exist for roofing and other light work, and having been conveyed to Mundla at low rates whence it can be rafted to Jubbulpore with a quantity of teak timber already collected in stock, I calculate we can afford to dispose of it at a profit of Rs. 1 per foot, and I estimate the whole to contain 4,115 cubic feet.

129. Major Pearson explained the terms under which the removal of the logs for the Department Public Works was undertaken, I shall therefore only add that the whole of this timber has now reached the rafting depot at Mundla and may be expected to be delivered in Jubbulpore by November or December next. I find that the contents, having been only averaged, were over estimated, as 524 logs delivered as above prove by actual measurement to contain 6,760 instead of 9,000. cubic feet 144 logs containing 1,545 cubic feet have within the year actually been delivered at Goareeghat, and were in course of transfer to the officers of the Department Public Works.

130. The total outlay on this work during the year amounts to Rs. 3,028-11-2, but I should like to reserve my opinion as to what rate we can deliver this timber for. There will be some slight further outlay before the the whole of the timber reaches Jubbulproe, and then I propose to close the transaction and come to a decision as to the disposal of the rolling stock and plant which has been obtained at the expense of the Department Public Works, after which the average rate can be fixed with accuracy and will prove a guide in our future dealings.

131. Exclusive of the timber above mentioned there have been 3,972 logs of teak brought on stock in depot, containing by measurement 22,354 cubic feet. 32,784 cubic feet have been disposed of at various depots, and realised Rs. 35,078-1-9 ; the closing stock balance amounts to 38,769 cubic feet, value Rs. 51,456-8-0, all of which I have grounds to hope will be realised next year.

132. This also is exclusive of the value of the Railway sleepers.

Sources of the timber supply.

133. The sources which have hitherto yielded the teak timber last mentioned are now almost completely exhausted and should it continue desirable to keep up this supply we shall have to obtain it from the Mundla sâl forest.

134. These forests can furnish an enormous supply, but must be worked fairly and by rotation tracts. The project for their working cannot now be matured, but I hold it would be vastly preferable to encourage substantial contractors to carry on operations under strict supervision, by allowing them to work at rates which would yield them a fair profit, to, as has hitherto been the case, Government going into open competition with private enterprise under, if not actually unfavourable circumstances, certainly under conditions which do

not tend to promote forest conservation. In fact I deprecate these extensive operations being undertaken departmentally, as it needs no demonstration to prove that when profit and revenue are held of paramount importance, the responsible officer will naturally go to work where it can be carried on with most effect within a given time, and this occassionally is productive of a want of consideration for the advantages of the forest, while the supervision of such work occupies the entire attention of our establishment and notably occupies the most intelligent portion of it most.

Epitome of cash results.

135. I shall as follows epitomise the whole of the cash transactions of the division. By taking in account the value of the stock on hand and outstandings at commencement of the year and outlay on work, the division appears debtor to the extent of Rs. 96,284-7-8 inclusive of executive officer's pay ; then taking credit for the value of stock in depot at close of the year, inclusive of outstandings, I find the total amounts to Rs. 1,94,124-5-3, thus leaving a balance in favour of the department of Rs. 97,839-13-11. If we now deduct from the last written amount Rs. 69,764-4-3, being the amount realised by district officers, we have a balance of Rs. 28,075-9-4 to credit *bonâ fide* of direct departmental agency.

136. This calls for no comment from me.

137. Having held executive charge of this division for a whole year I attentively watched the conduct of the establishment and feel gratified in being able, with the exception of that portion employed on plantation work at Ayree, to bear testimony to its general efficiency. I take this opportunity of stating that Lieutenant Douglas is deserving of the highest praise for his excellent selection and management of a most hard-working, intelligent, and honest set of subordinates. All operations undertaken during his incumbency were established on the soundest footing, and he placed me in charge of his appointment, leaving everything in the highest state of efficiency. His records and accounts were all in perfect order, and I feel proud in thus being able to place it on record.

138. It is a pleasing duty to bring to notice the services of Darogah Sheik Moyaddeen. His health and abilities have this season been severely tested and he proved himself fully equal to the occasion. He has been perfectly indefatigable both in organising the sleeper work and carrying on the timber operations of which he has had the conduct. His arrangements down to the most minor detail have been most excellent, and I have perfect confidence in his integrity. I consider him most deserving of advancement and would draw your attention to Major Pearson's views on that point, as the recently made sub-assistants' appointments in my opinion exactly afford the opportunity of rewarding such an officer.

Central Division.

139. Operations in this division have been so very circumscribed, being quite confined to the completion of the demarcation of the Sautpoora reserve nd pl antation on a very limited, although apparently successful scale, that there is not much scope for remark ; and it is impossible to distribute the subjects under the prescribed headings and sections.

140. The whole energy of Mr. Cox, the Assistant Conservator of this Division, appears to have been devoted to the demarcation or rather clearing of the boundary line of the Sautpoora reserve.

141. Mr. Cox estimates that at close of the year about 60 miles of the divisional block lines have been cleared as was decided upon in the project for systematically working this tract.

142. The exclusion of fire from a selected area of about six miles does not appear to have been succeeded in, owing, it strikes me, to the principle not being clearly understood, and consequently not sufficient precautions taken, there having been only two watchers employed in addition to the regular staff, while no lines were apparently cleared in order to cut off communication and arrest the course of fire.

143. The divisional report further fails to furnish details as to what steps were in progress to give effect to the orders of Government relative to the departmental Survey and other points in connection with the general administration of this forest.

144. Mr. Cox shall be called upon to submit a detailed report of his entire operations up to the close of this open season, from which I trust it will be found that a commencement has been made.

145. The plantation experiment was made near Sukata, a village in the western division of the reserve. The seed was sown broadcast, lightly covered with earth, and liberally watered. The seed germinated freely during the rains, and it is the intention to proceed with transplanting when the proper season arrives. The outlay was Rs. 211-2-1.

146. The other operations were undertaken at Seylajhiree in Sonawanee, and the number of plants is returned at about 1,000, which have grown upwards of 2 feet high, and although there does not appear to have been all the attention paid to the plants which is generally considered requisite to ensure success, yet the proportion of deaths is very small.

Offences against the Act.

147. There have been 31 prosecutions under Act VII. of 1865, in which 141 persons were implicated. Of these, 114 persons were convicted in 23 cases, and 27 others acquitted.

148. There has been no increase of timber stock within the year, although it was found requisite to incur an outlay of Rs. 562-8-0 in compensating a Zemindar for timber felled on his estate. This timber was in course of removal when it was found necessary to abandon the work in order to make the draught cattle available for what was considered more important work in the Western division.

149. The unreserved forests and financial condition of this division will be noticed in the second part general of this report.

Eastern Division.

Introduction;

150. My notice of this division must be brief, and the out-turn has not been so extensive as might fairly be looked for had there been a resident Executive Officer. I held the charge myself in addition to my other duties, and finding the latter in the Northern division required my undivided attention, I was unable to visit the Eastern division.

Statistical and descriptive of Raepore district.

151. Raepore is situate between north latitude 19°50' and 21°45' and east longitude 80°30' and 82°40'.

152. The total area is about 15,000 square miles and the total revenue about Rs. 6,53,560.

153. The district being composed of 17 feudatory and zemindaree estates in addition to the khalsa it is difficult to ascertain the population.

154. It is divided into the four tehseels of Raepore, Dhumterry, Droog and Simga.

Products.

155. The chief produce is rice, wheat, toor, and gram, peas, mussoor, castor oil, linseed, sugar-cane and hemp are also largely cultivated. The forest yields gums in great variety and large quantity, many of which are used as food and in preparing sweetmeats. Of dyes, lac, safflower and turmeric are common and largely exported.

Dyes.

Minerals and animal products.

156. Iron is the only mineral worked.

157. Manufactures are of slight importance except Kosah or Tussur silk, which is extensively raised and woven into pieces which are much sought for as wearing apparel.

City of Raepore

158. Raepore itself is the only place in the district worthy of being called a town.

159. Its early history is very obscure : it appears to have been a place of little note until 850 A. D, when a branch of the Ruttunpore ruling family came and established a court at Raepore. The site of the town was then considerably more south-west than the present one.

160. The Rajpoot rule was overthrown about the year 1745 by the Mahrattas, whose rule prevailed until about 1788, when the country was administered by Soobahs sent from Nagpore to Ruttunpore until the year 1818. In that year the country was placed under British superintendence in the person of Colonel Agnew, who moved the head-quarters of the district from Ruttunpore to Raepore.

161. In 1830 Colonel Agnew laid out what is now the main street of the town, which under his encouragement, and that of the officers who succeeded him, has largely increased, and has now become remarkable for its fine and uniform buildings, many of the pillars and balconies of which are most elaborately carved.

162. The population of Raepore itself has been ascertained to have increased from about 5,000 in 1818 to 12,000 in 1830, and 17,000 in 1866.

Arung.

163. Arung is the remains of a large and ancient town on the Mahanuddy, about 22 miles east of Raepore.

164. There are some ruins, one of a Jain temple, which is believed to be of considerable antiquity. It is carved extensively, but the carving is not of a high order.

Dhumterry

165. Dhumterry is one of the largest and most important town in the district. There is nothing remarkable about it, except that being central it is an extensive depot for the collection of lac for export.

Kullaree.

166 Kullaree was evidently once of importance. It contains some apparently very ancient and curiously constructed temples supposed to be of Jain origin, but the town has now sunk down into a village of insignificance inhabited by Gonds.

Rajim

167. Rajim is a small town on the bank of the Mahanuddy, 24 miles south-east of Raepore. It is celebrated for a temple dedicated to Rajilochun, and a fair is held in memory of that idol.

168. There are two ancient inscriptions, one bearing date 796 Sumbut, which corresponds with 750 A. D. Here also are agencies for the export of lac; and tussur silk is manufactured extensively.

Forests.

169. There is but one reserved forest in the district, although a large tract has been provisionally reserved from sale in the Lown pergunnah, not from the value of its present timber, but in order that, if found advisable, its general resources may be husbanded, in case such demand might arise with the increasing importance of Raepore as would tend to exhaust the supply of forest produce it now affords.

Kunturra Reserve.

170. The reserve before mentioned is of small extent, contains some fine sâl, and is situate on the Kunturra nulla, about 70 miles east of Raepore.

171. It borders on the Zemindarees of Kowrea and Deoree, in which there is much fine sâl, and it is intended to negotiate for the leasing from these States of the timber growing adjacent to the reserve, and thus secure some fine forests from the risk of exhaustion, and provide for future demand. Orders have also been issued to reserve an enormous sâl tract in Sahawa, in the vicinity of the source of the Mahanuddy.

172. This is almost the finest sâl forest in the Provinces and it is possible that the removal of some barriers from the Soondur river, an affluent of the Mahanuddy, may one day render the latter an easy outlet for the timber produce, conveying it to a port on the East Coast.

Belaspore district.

173. Belaspore lies between north latitude 21°45' and 23°10' and east longitude 81°30' and 83°15'.

174. The total area is 8,000 square miles and the revenue about Rs. 2,10,580.

175. Similarly to Raepore it contains 14 *quasi*-independent chiefships. The Chiefs of two only having been recognised as feudatories it is consequently difficult to ascertain the population.

176. There are three tehseels,—Belaspore, Moongeylee and Seoreenarain.

Products.

177. The chief produce is grain in both the usual variety and great quantity, with good cotton and lac.

178. There is also an extensive trade in tussur silk, estimated to represent Rs. 12,000 annually.

179. Considering the varied richness of the country and its valuable products it is decidedly backward, which doubtless it must continue to be until made more easily accessible from centres of civilization.

180. Until within the last four years the means of egress to the West were so defective that grain could only reach a nominal value, as almost the only practicable outlet was south through Raepore.

181. The Chilpee pass over the Meikul range into Mundla, being now passable for wheeled traffic, disseminates the riches of Kulowtee (as the country below the ghats is styled) most bountifully towards the West and Jubbulpore, whence it can be conveyed by rail.

Belaspore City.

182. Belaspore is pleasantly situated on the river Urpa, and is said to have been founded about 300 years ago by one Belasa, a fisherman, hence the name.

183. Previous to 1862 it remained comparatively insignificant. In that year it was constituted the head-quarters of the district, and is now a rising town increasing daily in wealth and importance.

Girode.

184. Girode is a small and poor hamlet about 50 miles south-east of Belaspore, but most justly celebrated as the locality in which originated the religious reformation of the Chumars of Chuteesgurh.

185. This has become a most fertile subject for disquisition, and some most interesting traditions have been recently elicited, which, although in some points they reflect unfavourably on the morals of the sect, yet entitle it at several other points to admiration.

186. The question is much too prolific in its varied bearings to be done justice to in a mere sketch of this class, and further discussion here would be misplaced.

Kewurda.

187. Kewurda is a wealthy Zemindaree; the town itself is large and flourishing, and there is more cotton produced in this State alone than all the rest of Chuteesgurh.

Laffa.

188. Laffa is also a Zemindaree, and chiefly noted for a hill in its vicinity which reaches an elevation of 3,280 feet, on the summit of which there are the remains of a brick fort and some temple ruins, with a never-failing supply of water.

189. Tradition asserts that here the earliest Rajpoot Rajahs dwelt, and ruins still extant corroborate the assertion.

Ruttunpore.

190. Ruttunpore is very ancient and was the former capital of Chuteesgurh, and the residence of former rulers of Rajpoot descent whose line was designated the Hy-Hy-Bunsee dynasty.

191. The city was of importance until 1782, when the seat of its local government was removed to Belaspore. Since then its population and prosperity have waned.

Seoreenaram.

192. Seoreenarain is chiefly important from being the head- quarters of a tehseel.

193. It is situated on the Mahanuddy, and celebrated for some sacred ghats and temples. In one of the latter there is an inscription, the writing of which affords strong foundation for supposing that it was built in Sumbut 898, *i.e.*, 841, A. D. It is however only interesting on account of its antiquity, having no pretensions to architectural beauty.

194. There is only one reserved forest in this district and that is of a small area It is known as the Hathibaree, and is on the Jonk river about 20 miles from Scoreenarain It produces teak, for which it was taken up, but almost all the best logs were felled some years ago, and from the difficulty and expense of removal, were allowed to remain unclaimed, and most of them were gradually burned and decayed. A small remnant of them has, however, been removed into safety from the forest, in hopes that a demand may some day arise for them; and the forest is being extended by artificial planting, for which both from its situation and climate there is every reason to consider it eminently suited.

Forests.

195. Sâl abounds in the district, but not of very high quality or in such localities as were suitable for reserve.

Sumbulpore district.

196. Sumbulpore lies between north latitude 19°01′ and 22° 35′, and east longtitude 82° 40′ and 85° 18′.

197. The total area of the district is 27,000 square miles, of which the Khalsa, or Government portion, is about 2,700, the remainder being Zemindaree and the Gurjat States.

198. The population according to the last Census was 812,348 souls, and the total revenue is Rs. 1,23,452.

199. Being only nominally connected with the department, yielding no forest revenue, and containing no forest land under direct administration, I consider further notice would only entail waste of time.

First Part—special

Section I.—*Area, boundaries, and descriptive account.*

200. No alteration has occurred in the Kunturra Nulla reserve since the report for 1867-68, in which it was described; and as yet the orders for its extension, by leasing the sâl in Deoree and Kowrea, remain in abeyance for the same reason as that assigned before. But on the appointment of an officer to the division this question should be brought to a close either way. I apprehend no difficulty in coming to terms for a lease of the growing sâl, of course allowing the Zemindars the most ample supply for their own use and that of the scanty population, and interfering in no shape with any privileges as to grazing, cultivation, the cutting of timber other than sâl, or collection of forest produce.

Hathibaree Reserve.

201. It appeared to me that a very large area was reserved here originally, from which no advantage could result, and I therefore, with Major Pearson's approval and the Chief Commissioner's sanction, excluded what I considered useless, and took up the whole area of two villages, and portions of three, where teak abounds and where the land is suitable for extending the forest by planting.

202. The work has been completed at a cost of Rs. 122-2-6, for which 11 masonry pillars have been constructed, and a broad boundary cleared in the usual manner.

203. Similar to the Kunturra reserve, this one is bounded on one side by a river, the Jonk. The area is about 15 square miles, and I look forward some day to this forest, when extended as it will be over the whole area by planting, becoming of very great value.

204. The selection of the tract in Sahawa has again unavoidably been deferred for the same reason as that assigned for not giving effect to the orders relative to the Kunturra extension.

SECTION II.—*Requirements of surrounding population and prescirptive rights.*

205. The two tracts just described, being situate in about the most remote and backward parts of Central India, with no population within their limits, and the country for miles around in all directions being heavily timbered, containing little or no cultivation, and being almost destitute of population it would, I feel, be idle to discuss this Section.

206. The sources of supply are far in excess of the demand, and I am not aware of any privileges having been interfered with which will afford any grounds for complaint or objection.

SECTION III.—*Protection.*

207. The measures to ensure protection are unchanged since last year and the establishment the same strength. I consider it insufficient, but shall make this question the subject of another communication.

208. There were six breaches of the Forest laws.

209. Conviction was obtained in five, and fines to the amount of Rs. 36-8-0 inflicted on 30 offenders. All these cases were brought forward by the district establishment at Raepore.

SECTION IV.—*Management and Improvement.*

210.—The topographical survey of the selected portion of Panabaras has been completed, but up to the close of the year no progress scarcely was made towards for the formation of blocks and compartments, owing to the delay in appointing an European Assistant, and the required work is beyond the capacity of the majority of Native subordinates.

211. Mr. Foster, who has been detailed for the duty, had reached the forest on the 21st March and at once commenced operations. They had not assumed a sufficiently established form to detail them here.

212. I furnished full instructions as to the classification of the timber and divisional demarcation, and, so far as I can judge, Mr. Foster is fully competent to complete the work ; and in suggesting an improved system of measuring and marking the trees according to their classes for registration he has evinced considerable aptitude.

Hathibaree plantation.

213. Up to the commencement of the year the only progress which had been made was to mark off the ground and sow the seed.

214. I have had no opportunity of examining the work since, but from the progress reports there has apparently been a successful supply of plants raised, and the area transplanted over amounts to 76 beegas.

215. The number of plants put out was 16,392, out of which number 2,000 are reported as having died up to the close of the year.

216. In the last report from the scene of the operations the height of the plants grown indigenously, of which a small proportion was put out, was on being transplanted 3 to 6 inches, and at the close of year they had reached as much as 12 and 16 inches.

217. Those artificially raised when transplanted were 2 to 3 inches high, and now vary from 4 to 8 and 10 inches.

218. From these results I feel no hesitation in pronouncing the experiment a success, but, whether owing to the climate, the soil, or the attention bestowed, I am not in a position to say.

219. The total cost of the work, inclusive of all charges for plant, stock, and labour, amounts to Rs. 2,199, and instructions have been given to extend the area in the ensuing year by another 100 beegas; beyond this work nothing further as prescribed for this section has been undertaken.

SECTION V.—*Yield and working of the forest.*

220. No sales have been effected from the timber placed on stock last year, and with the exception of a trifling loss from fire the quantity has not been decreased.

221. I was prepared for this, as the local demand is exceedingly small, while the sources of supply are more than proportionately large, and the removal of the timber, which was carried on during 1867-68 and the year under review, was undertaken solely to place the timber in safety and where it would be found easy of access in anticipation of future requirements. Literally the time for working the forests in this part of the country has not arrived.

222. The total outlay during the year on this account, viz., Rs. 6,322-10-8 is trifling, in return for which we have 8,699 cubic feet of excellent teak timber, the greater part of which has been collected from Panabaras and placed in depôt at Bagnuddy on the Eastern road, about half way between Nagpore and Raepore.

223. The timber is of such superior quality that it will not deteriorate, and will I dare say some day enable us to meet a requisition for first class seasoned timber; and as an experiment to raft to Kamptee will be tried next rains, we may possibly find ourselves in a position to extend these operations with profit.

224. The balance of the stock is in depot close to Hathibaree, and consists of a number of fine logs which were some girdled and some felled several years ago by a Mr. Meik, who attempted to deliver timber at the mouth of the Mahanuddy, but having failed to carry it out abandoned the project, and the timber reverted to Government.

225 Major Pearson approved of the removal of such logs as were worth it, and although far removed from centres of civilization it may eventually supply some demand.

SECOND PART GENERAL.—*Financial results.*

226 I find an actual deficit in the cash transactions of the division, amounting to Rs. 7,788-7-2, but by taking credit for the value of the timber and stock on hand at close of year the net credit amounts to Rs. 10,964-13-9.

227. The item Rs. 5,886-8-5, outstandings, consists of the balance of Rs. 3,000 paid to the Panabaras Zemindar on account of royalty on his timber, advances made to district officers as per budget allotment, a small sum advanced to contractors for pillar building, an old outstanding bad debt incurred in 1867-68 on work at Kunturra nulla, and a transfer of Rs. 3,000 to the Northern division.

Southern Division.

228. As was the case in 1867-68, two officers have been employed in this division during the year under review.

229. Captain Jarrett has had the conduct of the timber plantation and classification operations, while Mr. Brereton has conducted the Aheree survey.

Introduction, descriptive and statistical.

230. The division consists of portions of Nagpore and Chanda and the whole of Wurdah and Seroncha.

231. The Nagpore district, south of the Bhundara road contains no forests.

232. Kamptee and Nagpore are the principal places where timber demands on a large scale exist.

233. These are chiefly created by the imperial and railway works.

234. A depot was established at Nagpore for the collection and sale of timber from this division with but apparently indifferent success.

235. All the forests in this district are administered by the district officers.

Wurdah district.

236. There appears to be a dearth of valuable forest here, with the exception of the Ashtee reserve. Here there is a large proportion of teak, and the tract has been already described. The selection of the tract has not I perceive been made, and as yet the forests are administered through the district officer.

Chandah district.

237. Teak is found in abundance in most parts of the district, but chiefly of poor quality.

238. There is an export trade with Wurdah in small timber and bamboos.

239. In the trans-Wyngunga portion of the district are the Zemindarees of Aheree and Panabaras, which are well known to contain extensive teak forests, as well as sheshum of large dimensions and in considerable quantity.

240. Panabaras is worked from the Eastern, and Aheree from the Southern division.

241. The main timber depot for Aheree is established at the station of Chanda.

242. A large area of the forest land in this district is in Zemindaree estates.

Seroncha district.

243. Almost the whole forest area is in independent States, and the remainder is managed by the district officer.

244. The trade in timber and forest produce, except for local consumption is next to nothing.

245. Attached is a tabular Statement, prepared by Captain Jarrett, of the main statistical data of the Division :—

Districts.	Area in square miles.	Assessed area in acres.		Unassessed area in acres.		Land Revenue demand.	Rate of Land Revenue.						Total inhabitants.	Population to square miles.	Number of acres cultivated, to each person.		
		Cultivated.	Uncultivated	Revenue-free.	Government Waste.		On cultivated land per acre.			On assessed area per acre.							
						Rs.	Rs.	A.	P.	Rs.	A.	P.			A.	R.	P.
Nagpore	3,682	1,115,500	863,957	36,716	320,419	7,96,941	0	11	5	0	6	5	634,121	172	1	3	1
Chanda	10,000	696,291	3,598,990	45,428	2,059,291	2,56,896	0	5	11	0	1	0	537,295	54	1	1	7
Wurdah	2,392	854,759	569,917	24,622	81,524	5,06,811	0	9	6	0	5	8	343,485	144	2	1	38
Upper Godavery ..	2,274	43,478	44,758	1,500	1,326,624	22,401	0	8	3	0	2	9	54,680	24	0	3	7
Feudatoryship, Bustar.	13,062	202,263	8,157,417	...	..	3,056	..	...	...	..	..	...	269,684	21	0	3	0
Grand Total...	31,410	29,12,291	13,275,039	1,08,266	3,787,858	1,586,105	2	3	1	0	15	10	1,839,265	415	7	0	13

SECTION I.—*Area, boundaries and descriptive account.*

246. There are two leased forests in the Aheree Zemindaree, known by way of distinction as the Bemaram and Mirkulloo forests.

247. The former is situated on and around a block of hills about eight miles inland from the left bank of the Pranhita, between the villages of Aheree and Dewulmure.

248. The Mirkulloo tract is situated on and about another range of low hills about two miles eastward of the Bemaram forest and nearly parallel to it.

249. The survey of this tract is well advanced and will be completed this open season, when the classification will be proceeded with as rapidly as possible, from which a reliable estimate of the capacity of the forest can be obtained and the scheme laid down for its systematic working, whenever such working becomes desirable or can be carried on with advantage.

250. No permanent boundary marks have as yet been erected around either tract, but temporary ones have been at each angle, consisting of posts erected in heaps of stones, and close to each is a board with the number of the pillar branded on it, in correspondence with the number shown on the map.

SECTION II.—*Requirements of surrounding population and prescriptive rights.*

251. The unreserved forests are more than sufficient to supply local demands, and as the beforementioned forests are leased to Government, of course all rights and privileges have been reserved to the owner—the Aheree Zemindaree.

SECTION III.—*Protection.*

252. The arrangements under this heading are in the same condition as last year.

SECTION IV.—*Management and improvement.*

253. As yet no steps have been taken in this direction, nor was it I believe considered requisite until the completion of the survey and classification.

254. In the Bemaram tract, the former having been completed, the latter work was commenced on the 21st March by Captain Jarrett, under the conditions recommended by Major Pearson, and an interesting Statement prepared by Captain Jarrett will be found in the Appendix; it exhibits the exact condition of 12 sub-divisions in the 4th division.

255. The total area dealt with in this Statement is 2,221 acres. The whole average of sound teak will be found to be 9 trees of all classes per acre, and within a fraction of 3 of all classes unsound.

256. I find the relative proportion of sound to unsound timber per acre in each class separately to be as follows :—

Sound Teak.					*Unsound.*
1st	Class	1·205	..	...	·748
2nd	do.	1·242	...	...	·620
3rd	do.	3·337	...	..	1·065
4th	do.	3·215	...	...	·500
Sheshum.					
1st	Class	·081	...	..	·035
2nd	do.	·259	..	...	·058
3rd	do.	1·821	..	..	·346
4th	do.	1·177	..	...	·205

257. Captain Jarrett does not remark if this division is a fair average or otherwise of the forest, but the detail clearly demonstrates, from the preponderance of 3rd and 4th class trees over 1st and 2nd, that this forest has suffered from over-cutting, although not perhaps to an equal extent with the other teak forests of Central India.

258. The proportion of unsound trees is not surprising, although we may be prepared to find it exceed what this return shows should operations be undertaken, as Captain Jarrett states, what is equivalent to the fact, that unless trees showed distinct symptoms of decay they were returned as sound.

259. However I consider there is every reason to be content with the return, as there have been serious difficulties to contend with in carrying out this work, which on paper seems simple to a degree, but in practice presents many difficulties and entails severe exposure on the officer in charge.

Plantation.

260. Captain Jarrett reports these operations to have resulted in complete failure, and from the arrangements made as described by Captain Jarrett, I should have felt surprise at any other result.

261. The outlay amounts to Rs. 390-10-6. Details were not furnished.

SECTION V.—*Yield and working of the forests.*

262. During the year no felling was carried on, as it was considered preferable to proceed with the removal of the logs cut in 1867-68; and Captain Jarrett estimates that this timber, with some felled by the former lessee of the forest, and fallen timber, will afford occupation for two working seasons to come.

263. The stock return displays in depôt at commencement of the year 36,279 cubic feet of teak, valued at Rs. 27,209-4-0 and 625 of sheshum, valued at Rs. 468-12-0. There were received in depôt within the year 90 cubic feet of sheshum, besides 5,341 cubic feet of teak transferred from the Aheree depôt to those at Chanda, Wurdah, and Nagpore, which, if valued at the same rate as the previous year, viz., 12 annas, will amount to Rs. 67-8-0, or a total of 36,651 cubic feet of timber, valued at Rs. 27,488.

264. The sales during the year fetched for 21 cubic feet of sheshum Rs. 45-11-8, and 322 cubic feet of teak Rs. 553-15-7; and stock in hand at the close of the year is shown as 36,651 cubic feet, valued at Rs. 27,488-4-0, all of which is in depôt at Aheree, Chanda, Nagpore, and Wurdah.

265. A larger quantity than this remains in the forest, but not having been collected and measured has properly not been brought upon stock.

266. The outlay shown under A I. for timber work is Rs. 5,295-7-5, but I assume that this sum must include charges and advances for the work in progress. However, as Captain Jarrett's report does not assist me with any explanatory observations on his statements, I am only in a position to review them as they are furnished.

267. The difficulty of hiring carts having been found insurmountable it was decided to construct carts for the department and purchase our own cattle.

268. Fifty-one carts were made up for this division, and 101 bullocks are returned as effective at close of the year; while 30 carts loaded with 1,257 cubic feet of timber were on the way to Nagpore.

269. Captain Barrett returns the cost of each pair of bullocks inclusive of driver's wages at Rs. 14-14-6 per month, and also states that due preparations have been made for repairs to rolling-stock and plant.

270. Mr. Brereton makes a clear and concise report on his operations, giving a description of the situation and features of the Tulwara forest.

Survey.

271. He states the length of boundary to be 34¼ miles, and the total area to be about 13⅛ square miles. It has been marked off into 5 divisions, for the boundaries of which natural features have been selected where practicable.

272. In consequence of ill health Mr. Brereton was unable to make any valuation surveys.

273. During the year the outlay amounts to Rs. 12,433-0-4, but of this sum Rs. 817-8-0 were expended in clearing boundaries and setting up permanent marks, consequently it would more legitimately be charged to budget heading AX.

274. This sum seems large, but it must be borne in mind the very limited length of the working season in consequence of the unhealthiness of the forests; and I would beg to add that, notwithstanding his having suffered most severely from illness, Mr. Brereton appears to have made good progress on this work.

275. As the entire field operations will be completed this open season, shall reserve further observation for the Map and completion report.

Western Division.

276. The report furnished of this division is so deficient of all useful information and barren of detail that I am compelled to reduce my notice of the operations there to a bare statement of such facts as I can glean from the Statements annexed thereto, and which merely exhibit the stock on hand at commencement of the year, that received, the quantity disposed of, and the amount remaining in hand at close of the year.

277. I have requested Mr. Hicks, the officer placed in temporary charge, to furnish me a general statement of the progress and condition of such operations as come under his observation up to the end of May, the close of the open season, not confining him to a distribution of sections and headings, but such a statement as will record the condition of some of the operations in the division.

278. The opening balance of stock amounts to 21,819 pieces of timber of various dimensions and quality, containing 1,26,894 cubic feet. It is valued at different rates, from Rs. 2-8-0 to annas 8, and the total value is estimated at Rs. 1,25,450-12-0.

Results of timber operations.

279. In addition to this there are 6,628 sleepers, valued at Rs. 26,512-0-0.

280. There were brought on stock during the year 6,410 pieces of timber containing 51,473 cubic feet, valued at Rs. 47,356-10-6, and 6,951 sleepers, valued at Rs. 27,804. This makes a total to debit of the division of 178,367 cubic feet of timber and 13,579 sleepers,—total value Rs. 2,27,123-6-0.

281. The sales amount to 5,415 pieces of timber, containing 34,896 cubic feet; and the actual cash realised amounts to Rs. 27,161-9-4, leaving a balance outstanding of Rs. 3,617-4-0. 1,450 sleepers have been delivered to the Great Indian Peninsula Railway Company, and on this account Rs. 3,995-4-0 have been realised and credited, but I am not in a position to state whether any more cash has been realised on this account.

Timber sales

282. By deterioration of timber and rejections there appears a loss of 2,606 pieces of timber, containing 6,614 cubic feet and 13 sleepers; this was valued at Rs. 9,342.

283 The stock in hand at close of the year amounts to 19,208 pieces of timber, also valued at rates same as the previous year, they contain 136,857 cubic feet; 12,116 sleepers are returned also, the total value of which reaches Rs 1,82,564-10-4.

Review of stock, Statement, and Financial return

284. The total outlay of the division is returned at Rs. 87,597-7-4, from which Rs. 2,017-4-0 were allotted for district officer's expenditure. The balance has been expended under direct departmental agency, and is duly exhibited under the several heads for which allotments were made.

285. I collect from a memo., written by the Inspector General of Forests on concluding his tour recently made through this division in company with Lieutenant Doveton, that fires have been successfully excluded from the Boree Reserve since the rains of 1865, and from a portion of that forest even previous to that date.

Reserved forests.

286. Doctor Brandis enumerates the advantages thus:—

1st.—A quantity of fallen timber was saved.

2nd.—Trees of all ages have been protected from injury by fire.

3rd.—Young trees of all kinds are springing up freely over the opens in the forest.

4th.—The ground has been covered throughout the year and been kept more moist and cool than hitherto, and less loose soil has been washed away where the ground is uneven.

5th.—The general vegetation in the forest is more luxuriant than in the neighbouring forests; the grass, trees and bamboos remain green much longer.

287. I admit all these benefits to be strongly in favour of the exclusion of fire, but I find from further remarks in Doctor Brandis' memo. that he is prepared to find the ultimate advantage, as contrasted with the outlay the proceeding entails, questioned. I myself am opposed to it on a general or very extensive scale. I strongly advocate it in forests where natural reproduction of the more valuable and prohibited sorts of timber is favoured by some peculiarity, but indiscriminately undertaken the return cannot remunerate for the outlay, which to my own knowledge must be extremely heavy to ensure success.

Protection and improvement.

288. Doctor Brandis observes that the severe frosts must prove a serious obstacle to raising teak artificially in these Provinces.

289. He notices a small plantation in the Boree forest as being in a satisfactory condition, and makes suggestions as to the course to be adopted in future transplanting.

290. He also remarks that the growth of teak as ascertained by him in the same forest, is about at the rate of 4 feet girth in 120 years, and that this would give not less than 200 years for the age of a tree of 6 feet in girth, and that it is fair to infer that trees above 5 feet in girth are ripe for felling, and, under certain circumstances, even a lower minimum girth may be fixed.

Rate of growth of teak.

291. Doctor Brandis in discussing the Reserves at Bowargurh, Sowleegurh, Rajaboraree, and Kaleebheet, points and that their geological formation and the prevailing rock (trap) renders them to a certain extent unfavourable to the growth of forests in the dry climate of these Provinces, that they include large areas which it will be difficult to convert into productive forest, and for the present suggests the utilisation of these open portions by cultivation and pasturing, pointing out at the same time the necessity for great precaution to prevent the continuance of any rights or privileges which might eventually become prescriptive.

Reserved forests.

292. He generally approves of the selection of these tracts as it would have been impossible to secure compactures and the most favourable boundaries without including the inferior lands mentioned.

293. Doctor Brandis recommends the granting of annual leases, where practicable and not detrimental to the growth of valuable timber, to be renewed from year to year, with a distinct clause that they are liable to terminate at the close of any year, and also the not over-strict prohibition of the removal of the timber and bamboos for building and agricultural purposes, holding it a question for consideration whether certain portions of land should not be assigned for village purposes in order to encourage a small population.

294. The other portions of the Inspector General's memo. chiefly refer to executive and systematic management of these tracts.

FIRST PART SPECIAL.—*continued.*

295. The course of proceeding which obtains in the disposal of the unreserved forests and realisation of the revenue is so varied and of so manifold a character, it is fraught with such importance to both Government and the population of the country, and having hitherto formed a subject for lengthened discussion and the expression of opinion by officers of broad and liberal views, I approach the question with diffidence, and feel it but justice to myself to claim the consideration of the Chief Commissioner for not at present entering fully into a review of the system.

296. It shall afford subject for my earliest and most careful consideration, and on making myself better acquainted with the conditions and advantages or otherwise of the systems proposed and prevailing I shall, should it be considered desirable, feel much pleasure in reviewing the whole question.

297. Appended is a comparative Statement of the receipts, showing the difference between this year and 1867-68. From this Statement you will observe that the revenue has not reached within Rs. 23,139-14-0 of that of last year, or if we take credit for Rs. 8,479-15-6 outstanding unrecovered, the deficit proves to be Rs. 14,659-14-6.

298. An increase amounting to Rs. 11,546-10-1 over their collections for 1867-68 occurs this year in six districts, namely, Saugor, Nursingpore, Seroncha, Hoshungabad, Seonee, and Chindwara; while in the other twelve the decrease reaches Rs. 34,709-8-9.

299. On perusing the reports furnished from each district I find that there is far from a universal concurrence as to the general applicability of the proposed systems of working the unreserved forests. This I hold to be fair evidence that no one general system can be laid down and found to work satisfactorily in each and every district alike, few districts being similar one to another in any of their features, and every district differs from the other in its most important elements.

300. The Summary Settlement seems to have been universally rejected, the commutation system has not met with very general adoption, and the old system of farming seems to meet with most favour.

301. The deficiency of income is generally ascribed to the relaxation of duty on forest produce, in consequence of the distress which prevailed in many localities.

302. My personal experience led me for some time back to expect this falling off of income from the district forests, as it was patent that in the majority of the purchases of the rights to levy duty the buyers were aroused to lively competition from the past experience gained in previous seasons of the facility which the ignorance of the poorer classes in the out-of-the-way places afforded for them to recoup their large outlay by extortion.

303. Much of this has now been suppressed, both from the average of the population having become acquainted with their real rights and privileges, and the interposition of District officers.

304. Captain Ward in his report on Mundla adverts to that portion of his previous year's report which Major Pearson inserted at para. 114. He says:—

305. "In para. 16 of last year's report I mentioned what I proposed doing regarding the circumscription of the limits within which the Bygahs would be allowed to cut dhyas, as to stop the system altogether appeared to be quite impossible, throughout the sâl forests extending east from the borders of Mowye to Ummerkuntuk. These arrangements have been carried out in all the large Bygah villages, proprietary right in them has been vested in the State, and the Bygahs given simply rights of occupancy, on the condition that they will confine their dhyas within the limits now prescribed, and avoid as much as possible the destruction of sâl.

306. "All attempts to induce the Bygahs of these parts to take to plough cultivation have failed, and until the country is opened out and the advantages of the new system brought home to them I see little chance of improving the state of the Bygah."

307. I strongly advocate the general adoption of this system in dealing with this race of people, and I insert the foregoing extract as I find Captain Bloomfield in his report on Balaghat, after mentioning the course he is about to adopt of levying an annual contribution in order to protect the Bygahs of that district from the extortion of contractors, complains that "the settlement of these people is one of considerable difficulty, and I do not at present see my way to prevent them from infringing forest laws and at the same time pay due regard to their rights."

First Part General.

308. Under the present system of Forest legislation this head calls for no remark.

Second Part General.

309. The following is the account of forest revenue for the year 1868-69 :-

By cash received from Reserved forests Rs.	1,01,851	3	1
By cash received from Unreserved forests „	2,49,162	9	4
Cash Total „	3,51,013	12	5
Add timber stock .. .. „	3,23,701	6	4
Outstanding balances due to department „	55,556	6	1
	7,30,271	8	10

Contrasted with the assets of 1867-68 this displays a surplus of Rs 1,08,306-12-1

310. Much of this surplus is owing to the large quantity of stock on hand and sleepers in the Northern and Western divisions.

311. I hesitate to say whether the whole or what portion will be realised in the ensuing year in the Western division; but I can hold out almost a certainty of that of the Northern being disposed of, as the timber has only to reach Jubbulpore to ensure its being bought ; and as it will be delivered by raft in the Nerbudda I feel confident in my statement.

312. The returns of the Western division show an increase in the timber sales in that division of Rs. 17,861-15-10, and in the Northern there is an increase of Rs. 7,504-3-7 during the year under review over the returns under that heading in 1867-68.

313. The amount realised under this head in the other divisions is insignificant. I find that the sum realised in the Western division falls short of that shown in the regular estimate by Rs. 1,00,355, and that in the Northern by Rs. 18,421-14-3.

314. The former deficit I take for granted is owing to the failure in delivering sleepers and supplying the demands of the Saugor branch of the Department Public Works.

315. The latter is due to the non-delivery by water at Jubbulpore of a quantity of teak logs which were collected for floating in Mundla but could not be brought down owing to the deficient rain-fall.

316. The outstandings at close of 1867-68 amounted to Rs. 38,112-8-2. Major Pearson explains this item in para. 123 of his report and accounts for such a large sum being unadjusted.

317. At close of this year I find Rs. 55,556-6-1 as returned outstanding. Of this sum Rs. 43,463-2-7 are cash advances on work in progress; and the balance, Rs. 12,093-0-0, on account of district revenue to the extent of Rs. 8,475-15-6, and Rs. 3,617-3-6, which appears in the accounts of the Western division. But no explanation has been offered as to what head it is outstanding under.

318. The following abstract exhibits the results of the operations of the year:—

Dr. *Cr.*

	Rs.	A.	P.		Rs.	A.	P.
Cash receipts	3,51,013	12	5	Stock in hand at commencement of the year.	2,34,878	0	0
Timber on stock ...	3,23,701	6	4				
Outstanding	55,556	6	1	Outstanding at do. do.	38,112	8	2
				Results of forest administration during 1868-69.	4,57,281	0	8
Total Rs. ..	7,30,271	8	10	Total Rs.	7,30,271	8	10

319. I shall now close this report, and trust the Chief Commissioner will not disapprove of my doing so without the addition of my general remarks. Keeping it open for these remarks would only further defer its submission, without any proportionate advantage. And I prefer making such topics as would come under that heading subject for separate communication as I become better acquainted with my office details.

I have the honor to be,

Sir,

Your most obedient Servant,

W. JACOB,

Officiating Conservator of Forests,

Central Provinces.

No. 21.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Summary of Revenue and Expenditure in the different Divisions during the year 1868-69.

Classification.	Northern Division.			Southern Division.			Western Division.			Eastern Division.			Central Division.			Total.		
RECEIPTS.	Rs	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs	A.	P.
I—Sale of timber at depots	35,089	14	9	2,117	10	2	43,687	7	5	..	..	.	498	2	0	81,393	2	4
II—Sale of timber removed by purchasers	19,005	13	0	415	13	0	1,218	9	9	..	..	..	7,431	5	9	28,071	9	6
III—Duty on foreign timber	11	6	0	42	0	0	40	0	0	..	..	..	...	..	..	93	6	0
IV—Permit fees	35,836	3	6	52,528	12	11	38,753	9	6	16,986	1	6	41,827	0	4	1,85,921	11	6
V—Grazing dues	8,837	12	11	3,735	2	5	2,028	1	3	..	..	..	18,251	13	7	32,922	1	2
VI—Sale of fruits, &c.	2,659	9	6	566	1	0	1,430	2	8	645	8	6	7,248	10	5	12,550	0	1
VII—Sale of confiscated timber	142	2	0	399	4	8	149	7	6	335	1	0	131	14	0	1,157	13	2
VIII—Fines and forfeitures	308	9	0	173	9	5	339	9	0	506	4	1	218	15	4	1,546	14	10
IX—Miscellaneous	5,428	12	10	916	12	0	331	2	1	...	..	..	679	9	11	7,356	4	10
Total Receipts	1,07,310	3	6	60,895	1	7	88,048	1	2	18,472	15	1	76,287	7	1	3,51,013	12	6
CONSERVANCY AND WORKING.																		
I—Timber expenses	46,423	0	2	5,179	13	7	39,582	12	4	6,322	10	8	121	4	0	97,029	8	9
II—Purchases of Stock and Cattle	3,252	13	0	7,726	10	2	2,151	12	5	645	14	6	4	4	0	13,781	6	1
III—Feed and keep of Cattle	899	9	10	6,775	4	11	1,087	1	1	1,547	8	9	740	1	8	11,049	10	3
IV—Rent of leased Forests	..	..	..	..	..	..	..	..	..	...	..	..	562	8	0	562	8	0
V—Charges in collecting revenue on grass &c.	7,350	0	0	3,800	0	0	2,017	4	0	1,000	0	0	3,750	2	4	17,917	6	4
VI—Plantations	8,877	12	8	390	10	6	10,128	0	6	2,085	15	8	486	15	1	21,969	6	9
VII—Forest Work	5,618	0	8	348	11	6	4,594	6	10	28	2	6	174	13	8	10,759	3	2
VIII—Forest Survey	30	2	6	3,180	10	6	...	..	..	520	3	8	428	6	11	4,159	7	7
IX—Experiments on timber	..	..	..	..	..	..	..	..	...	..	..	..	..	..	..	..	..	..
X—Communications and Buildings	2,251	10	0	564	11	0	3,443	8	7	134	0	0	2,702	12	0	9,096	9	7
Total Conservancy and Working	74,698	0	10	27,966	8	2	63,004	13	9	12,284	7	9	8,971	3	8	1,86,925	2	2
ESTABLISHMENTS.																		
I—Salaries	18,238	12	3	33,816	12	2	21,614	12	6	5,844	9	9	9,182	6	0	88,696	14	8
II—Allowances	1,695	5	3	6,636	1	7	2,735	6	11	570	8	3	803	5	11	12,440	6	11
III—Contingencies	1,107	12	4	2,222	2	0	2,259	10	2	302	11	2	700	0	8	6,592	4	4
Total Establishment	21,041	13	10	42,674	15	9	26,609	13	7	6,717	8	2	10,685	6	7	1,07,729	9	11
Grand Total Expenditure	95,739	14	8	70,641	7	11	89,614	11	4	19,001	15	11	19,656	10	3	2,94,654	12	4

No. 22

FOREST DEPARTMENT, CENTRAL PROVINCES

Annual Abstract Account of the Cash transactions of the Forest Department in the Central Provinces.

Year.	Heads of Account.	Rs.	A.	P.	Year.	Heads of Account.	Rs.	A.	P.
1868-69.					1868-69.				
	To Cash in hand on 1st April 1868	15,330	3	5		By Expenditure of the Department	2,94,654	12	1
	„ Revenue received	3,51,013	12	5		„ Remittances to State Treasuries	3,51,531	10	4
	„ Remittances from State Treasuries	3,12,778	0	8		„ Repayments of Deposits	0	0	0
	„ Deposits	0	0	0		„ Advances made	1,08,351	12	7
	„ Advances recovered	1,05,109	14	2		„ Refunds of Revenue	0	0	0
	Assessed Taxes.					„ Cash Balance in hand on 31st March 1869	30,632	9	10
	„ Professions and Trades Tax	372	8	0					
	Military Department, (*Madras*)								
	„ Stamp Fees	15	0	0					
	Government of India.								
	Military Fund Rs. 144-0-0 ...								
	Orphan „ „ 160-0-0 ..	304	0	0					
	Government of Madras.								
	Military Fund	247	6	2					
	Total	7,85,170	12	10		Total ...	7,85,170	12	10

No. 23.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers.

DIVISION.	Department Debtor.			Department Creditor.			Balances due.	
	At commencement of year.	Recoveries in cash, and value of supplies and work done during year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (outstandings).	By Department (liabilities).
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Northern Division	..	27,476 12 3	27,476 12 3	205 6 0	39,041 4 8	39,246 10 8	11,769 14 5	
Southern Do.	...	19,081 6 4	19,081 6 4	9,767 6 2	12,638 0 0	22,405 6 2	3,323 15 10	
Eastern Do.	..	7,785 2 9	7,485 2 9	3,131 11 2	10,240 0 0	13,371 11 2	5,886 8 5	
Western Do.	...	99,710 0 11	99,710 0 11	17,448 0 11	1,04,538 14 3	1,21,986 15 2	22,276 14 3	
Central Do.	...	3,744 2 4	3,744 2 4	500 0 0	3,450 0 0	3,950 0 0	205 13 8	
Forest Revenue	...	7,059 15 11	7,059 15 11	7,059 15 11	12,093 3 6	19,153 3 5	12,093 3 6	
Total ..	..	1,64,557 8 6	1,64,557 8 6	38,112 8 2	1,82,001 6 5	2,20,113 14 7	55,556 6 1	

No. 24

FOREST DEPARTMENT, CENTRAL PROVINCES.

STATEMENT of Timber brought to Depots from the different Forest Divisions during 1868-69.

Division.	Forest.	Description of Timber.	Pieces.	Cubic feet.	Totals of each Division. Pieces.	Totals of each Division. Cubic feet.	Remarks.
Northern Division ..	Singarpore	Teak Logs	1,599	3,737			
"	Chirkachapa	"	37	259			
"	Sugrapahar	"	127	4,447			
"	Mircheekona	"	378	7,353			
"	Chowareegogurh	"	66	660			
"	Gurrakota	"	2,157	5,794	4,364	22,250	
"	Sukree Ghat	Sâl-Logs	256	4,115	1,595	4,115	
"		Side Pieces	1,339				
"		Sâl Sleepers	4,800	19,200			
"	Jubbulpore	"	1,844	7,376	6,644	26,576	
Southern Division ..	Aheree	Sissoo	4	90	4	90	
Eastern Division ...	Hatheebaree	Teak	148	3,491			
"	Bagnuddee	"	182	5,202	330	8,693	
Western Division ...	Boree	Teak	2,007	10,407			
"	Sowleegurh	"	1,129	11,589			
"	Bowergurh	"	1,726	18,315			
"	Kuttunga	"	821	8,254			
"	Sowleegurh	"	727	2,908	6,410	51,473	
"	Delakaree	Sâl Sleepers	5,703	22,812			
"	Sowleegurh	Teak do.	1,248	4,992	6,951	27,804	
Total ...					26,298	1,41,001	

No. 30 F, dated 14th January, 1870.

From—The Government of India, P. W. Dept.,

To—Chief Commr. of Central Provinces.

I am directed to acknowledge the receipt of your letter No. $\frac{2561}{286}$, dated 20th August last, forwarding the Forest Progress Report of the Central Provinces for the year 1868-69; at the same time I am to notice some of the more important matters discussed in the Report for 1867-68, regarding which orders have not yet been passed. Both Reports are accompanied by a detailed review by yourself, which leaves but a few points for the Government of India to notice.

2. At the present time the financial results of your Forest administration demand the first notice. They have not resulted in any considerable surplus during the two years under review, and the perusal of these Reports has convinced His Excellency the Governor General in Council that strict economy must be rigorously enforced in the Forest administration of the Central Provinces. It is abundantly proved by the facts brought forward in these and previous Reports, that the stock of growing wood and timber is extremely poor and scanty in those forests under the control of the Department in the Central Provinces which are at all near a market, or conveniently situated for the export of timber and other forest produce, and that all those forests which still contain valuable timber are difficult of access, and at a great distance from any market. These facts have to be fully borne in mind while considering the financial results of Forest management in the Central Provinces.

3. The figures of the last five years are entered in the Annual Reports as follows:—

	Receipts.	Charges.			Surplus.
		Conservancy and Working.	Establishment.	Total.	
	Rs.	Rs.	Rs.	Rs.	Rs.
1864-65 ...	89,307	35,610	61,946	97,556	Deficit (8,249)
1865-66 ...	2,02,644	38,504	74,994	1,13,498	89,146
1866-67 ...	3,67,095	46,817	81,041	1,27,858	2,39,237
1867-68 ...	3,49,491	1,13,068	99,031	2,12,099	1,37,392
1868-69 ...	3,51,014	1,86,925	1,07,729	2,94,654	56,360

4. These figures show that the charges have grown nearly in the same proportion as the receipts; and though to a certain extent this result is justified by the circumstances of the case, yet it appears quite necessary to insist on greater economy in future. The Governor General in Council is convinced that the first step towards a more economical management is to make the Conservator of Forests responsible for an efficient control of the whole expenditure, and to afford him the needful means for exercising this control. It appears that, under existing arrangements in the Central Provinces, the Divisional Forest Officers render their accounts direct to the Accountant General, and that the Conservator of Forests has no share in the control and scrutiny of the expenditure in detail. The Government of India is disposed to consider that the increased importance of the Department now demands the establishment of an Office of Forest Accounts under the Conservator's control, and if this arrangement can be made without any considerable increase of expenditure, the needful measures might with advantage be taken at once.

5. It may be necessary, temporarily at least, to attach an Assistant to the Conservator's Office for this duty, who will compile and scrutinize the accounts during his absence from head-quarters. An additional Officer cannot be sanctioned, but the Staff* at the Conservator's disposal appears to His Excellency in Council to be sufficiently numerous to admit of an Officer being made available, and I am directed to request an early report on this subject.

*3 Deputy Conservators.
4 Assistant "
2 Sub-Assistant "
1 Forester.
2 Apprentices.

6. Of the different items of Charges, Timber expenses have risen from Rs. 19,441 in 1864-65 to Rs. 97,629 in 1868-69. As this outlay is necessary for the realization of a considerable portion of the Forest revenue, its increase cannot reasonably be objected to, but I am directed to urge the most rigid economy in the disposal of the funds expended on this account. The large increase under purchase of stock and cattle, and keep and feed of the same, amounting in 1868-69 to Rs. 13,781 and Rs. 11,050, respectively, appears to demand attention.

7. Under Plantations, Forest work and Communications, the charges have been considerably augmented during the last five years—

	1864-65.	1868-69.	Total outlay during five years.
	Rs.	Rs.	Rs.
Plantations	284	21,969	34,622
Forest work	298	10,760	16,986
Communications ...	304	9,097	35,987

Now all these are necessary operations, but it appears to His Excellency in Council that in the matter of Plantations certainly the results achieved as detailed in the Reports have not in any way been commensurate with the amounts expended on that account. Doubtless, the climatic difficulties are very great, and it is evident that the operations in this respect are still of a tentative and experimental character, the success of which is as yet uncertain. Under these circumstances, it appears advisable to continue such operations on a more limited scale, until improved modes of procedure shall have been established by experience which will secure satisfactory results with reasonable certainty.

8. With the next Annual Report should be given a detailed statement showing the result of the Plantations made up to the end of the current year, with a descriptive account of each, and a statement of the area stocked, and the estimated annual cost of their maintenance. In a similar manner, details of the expenditure under A 7, "Forest work" and A 10 "Communications" should be given.

9. Under "Establishments" the increase has been as follows :—

	1864-65.	1868-69.
	Rs.	Rs.
Salaries	54,245	88,697
Allowances	6,720	12,440
Contingencies	981	6,592

The annual cost of the scale now sanctioned by the Government of India amounts to Rs. 95,976. The items of this scale have been carefully considered, and His Excellency in Council has no reason to think that the outlay, though large, is in excess of what is proper. But any further expansion of the work must for the present be met by a re-distribution of Establishments already sanctioned. Travelling allowances are very high in this Province ; they have risen in a somewhat higher proportion than the amount expended on Salaries, but this outlay also may be unavoidable. The case appears to be different with Contingencies, and His Excellency in Council desires that, at the end of the current year, a special detailed Report be furnished, which it is confidently expected will lead to considerable reductions in this respect.

10. The special portion of these Reports naturally divides itself into two portions. First, the work done for the demarcation, management and improvement of those forests which are under the exclusive control of the Forest Department, whether they have been demarcated as State forests, or are held

on lease, or under other arrangements with the proprietors; and secondly, the management of the Unreserved or District forests. In para. 4 of the Orders on the Report for 1866-67, a Statement showing the Reserves demarcated, or not demarcated, their area, and remarks regarding their management, was called for. Such a Statement has only been furnished for the Northern Division; a general Statement of the Reserves in the whole Province should accompany the Report for the current year, the data given being approximate where exact data cannot be furnished.

11. In the Northern Division, the following Reserves or State forests have been demarcated :—

1.—Jugmundul, area about 53 square miles, 5 villages inhabited.
2.—Choareegogurh, „ 8 „
3.—Burailla, ... Demarcation not completed.
4.—Ayree „ 5 „ ... Set apart for a Teak plantation.
5.—Bijaragogurh, „ 31 „
6.—Singrampoor, „ 10 „ ... 36 miles from Jubbulpoor.
7.—Gurrakotta, „ 6 „
8.—Sal Forests on the Meikul Range. Not yet demarcated. (Topla Forests.)

It is satisfactory to observe that in the two tracts first mentioned, fires have now been completely excluded for two entire seasons. Regarding the survey and demarcation of the Sâl forests on the Meikul Range in the Districts of Mundla and Balaghât, a separate Report has lately been received, on which orders will be separately communicated.

12. The account given of the Ayree Plantation is not encouraging; 25,000 plants are the result of a considerable outlay, of which Rs. 7,400 were spent in 1868-69. And yet it is said that this plantation was from the commencement in charge of a practical Forester, specially sent for from Scotland for this description of work. The Report of the Gurrakotta Plantation is not much more favourable.

13. The description of what has been done to make the timber from the Toplah Sâl Forests available at Jubbulpoor, is satisfactory. It is evident that the present operations have not yet been remunerative, but eventually it is hoped that it will be possible to reduce the cost of carriage, so that the timber from these forests can be delivered at remunerative rates. At present every effort should be made to bring down a sufficient quantity of timber to complete the number of sleepers promised to the Great Indian Peninsula Railway, and after the completion of this contract, it will then be time to consider Mr. Jacob's proposal to employ substantial contractors to carry on the timber operations in these forests.

14. The account given of the work in the Central and Eastern Divisions calls for no special remarks.

15. In the Southern Division, the most important forests are the Teak forests in the Aheree Zemindaree. They have been noticed in previous Reports, and the Governor General in Council has observed with satisfaction that the topographical survey, and the division into blocks of the two principal tracts, Bemaram and Mirkulloo, had by the end of 1868-69 nearly been completed by Mr. Brereton, and that good progress had been made by Captain Jarrett, the Officer in charge of the Division, in the valuation surveys, or operations for taking stock of the timber growing in these forests.

16. The forests of the Western Division have lately been visited by the Inspector General of Forests. His letter of suggestions* to the Conservator regarding the management of these forests, which has been submitted to the Government of India, and the main points of which appear to have been approved by you†, will be printed with the Reports now under review. His Excellency in Council is glad to observe from that Report that fires had been successfully excluded from the Boree Forest during the last four years.

* No. 86, dated 9th April 1869.

† No. 1087—127, dated 19th April 1869, to Inspector General of Forests.

17. Regarding the management of the Unreserved or District forests, the Governor General in Council has read with much interest the remarks in your reviews of the two Reports under consideration. The revenue realized from this class of forests is stated to have been as follows :—

	Rs.
1866-67	1,92,995
1867-68	2,72,302
1868-69	2,49,162

18. Paragraphs 108 to 114 of Major Pearson's Report for 1867-68 give an account of the system according to which these forests are managed, and the Inspector General of Forests has submitted some further correspondence on the same subject.* His Excellency in Council observes that the greater portion of this revenue has hitherto been obtained by leasing out the District forests in convenient blocks under annual leases, the Lessees selling to the inhabitants the grass, wood and other forest produce under arrangements which vary in different Districts. Major Pearson says that this system seemed to work well when it was first introduced, but has led to much oppression on the part of the Lessees, and that it has in no way furthered the interests of conservancy, but rather served to encourage waste. Accordingly, it appears to have been proposed in all agricultural districts to grant to the people the right of collecting the staples of daily consumption, fuel, grass, small timber and bamboos, for their own use in the District forests on payment of an annual rate, to be settled apparently not with the malgoozar, but with each individual cultivator. This system of commutation, as it has been called, appears to be considered by yourself a preferable arrangement to the farming system.

* No. 239, dated 28th September 1869, from Inspector General of Forests, to Secretary, Chief Commissioner, Central Provinces.

19. This is evidently a question of great importance, and I am directed to request that, after the Inspector General's communication of the 28th September last shall have been considered, a full report on the subject may be submitted.

20. From the correspondence adverted to, it is gathered that it has been suggested in certain Districts to reserve from sale, and eventually to demarcate as Reserves, certain tracts not included in the State forests already selected. The Governor General in Council desires that it be considered whether additional Reserves should not be demarcated in the vicinity of the lines of Railway. It is evident that the produce of such forests must speedily acquire great value as compared with other tracts situated at a distance from the lines. The Conservator's attention should be specially directed to this question, and a special Report should be submitted, explaining whether in the Districts of Nimar, Hoshungabad, or other Districts through which the line passes, additional Reserves might not with advantage be formed in the vicinity of the Railway.

21. In your review of the Report for 1867-68, His Excellency in Council has read with satisfaction the high terms in which you have acknowledged the services rendered by Major Pearson to Forest administration in the Central Provinces, and desires to express his full concurrence in your estimate of this Officer's energetic and judicious performance of his duties both in the Central Provinces and elsewhere.

No. 86, dated 9th April, 1869.

From—Mr. D. Brandis, *Inspector General of Forests,*

To—Secretary to the Chief Commissioner of the Central Provinces.

I beg to submit, for the Chief Commissioner's information, copy of a letter * addressed by me to the Conservator of Forests, and trust that my having done so will meet with the Chief Commissioner's approval.

* No. 85 of 9th April 1869.

No. 85, dated 9th April, 1869.

From—Mr. D. Brandis, *Inspector General of Forests,*

To—Conservator of Forests, Central Provinces.

Having completed, in company with you, my tour through the principal Reserved or State forests of the Western Division, I beg to offer the following remarks and suggestions for your consideration :—

2. *Boundary lines.*—I understand that, of the forests visited by us, the demarcation of the *Boree, Bowergurh* and *Sowleegurh* forests has been completed ; that, with the exception of those places where the natural boundaries are sufficient, such as the line of rocky precipices north of the Boree Forest, lines 40 feet wide have been cleared all round these forests, and that it is intended to keep these lines clear. I also understand that round the Kaleebheet Reserve the line has been cleared, and that the line round the Rajaboraree forest has been cleared partially, and is expected to be completed this season. In the forests not visited by us, the Poonassa and Taptee Reserves, you have informed me that the work stands as follows :—

Round Poonassa, a line 5 yards wide was cleared a year ago ; the completion of the broad line, 40 feet wide, has not yet been reported, but is believed to be finished. In the Kuttunga and Taptee Reserve the demarcation by posts and stones has been carried out, but the line has not yet been cut. The boundaries of a few villages are disputed.

3. I further understand that in those forests where the outer boundaries have been demarcated, lines have been cleared in the same manner round all malgoozaree estates which are enclosed in the forests.

4. Temporary boundary marks, consisting of a heap of stones with a post let into them, have, I understand, been erected all along, both on the inner and outer boundary lines.

5. This appears to me very satisfactory, I am confident that the clearing of all boundary lines was a necessary measure, and the width selected by you seems to be suitable. Wherever I examined the line I found it in good order.

6. *Permanent boundary marks.*—It now remains to agree upon the nature of the permanent boundary marks that are to be erected. Clause VI of the Central Provinces Forest Rules says, "the boundaries of Reserved Forests will be demarcated by masonry pillars, or in other permanent manner." Round the greater part of the Bowergurh Reserve, I understand that masonry pillars have already been erected, but where the arrangements for doing so have not yet been made, and where stone is abundant as in these forests, masonry pillars do not appear necessary. In concurrence with you I would suggest large heaps of stones, say 4 feet high, with a post of teak heart-wood let into them, roughly squared, about 6 inches square. On the inner face of the post, towards the forest, I would have the current number of the boundary mark carved. There should be one set of current numbers for each boundary line, and these numbers should be entered on the map of the forest. This is of great importance. It facilitates the identification of each boundary mark on the ground.

I would also, wherever possible, have these posts white-washed once a year ; this might be done at the time when the line is cleared.

b

P. W. D.—13, 9, 70—170.

7. The selection of the points where these boundary marks should be erected, is a matter of much importance. In my letter to your predecessor's address, No. 53 of the 13th August last, I gave an extract from suggestions made in regard to permanent Forest boundary marks in Burmah, and referred to a clause in the Burmah Forest Rules which prescribes 200 yards as the minimum distance between two marks. But, then, circumstances are different here. The jungle is generally more open in the Central Provinces, and broad lines can be cleared, and kept clear, at less expense. Under these circumstances, it appears unnecessary to fix any minimum distance between the marks. In the first place, it is necessary that the position of each boundary mark should be correctly entered on the map. Where a special survey of the boundary line has been made, points fixed by the survey should be selected, and I understand that this has been the practice in this Division. This will give you a boundary mark at every angle. In addition, intermediate marks may be necessary where the straight lines are long, and the country open, so that cleared paths are no guide. In such cases I would select points where the line crosses a stream or a road.

8. *Map of the Reserves.*—I understand that you have arranged to be furnished by the Topographical Survey Department, on completion of their survey, with maps of each Reserve on the scale of 4 inches to the mile, giving all topographical detail determined by the Survey.

Maps on this scale will, for the present, probably be sufficient for your forests to enter the working divisions and any other detail that may be required. For certain purposes, maps on a smaller scale of 1 inch to the mile will be necessary. These maps of both classes should be in sheets of a uniform and convenient size ; they should show as much of the country surrounding the State forest as can conveniently be entered on the sheets.

You will require a considerable number* of copies of both classes of maps, not only for the use of your Assistants and Subordinates, but also, on the introduction of a regular plan of working, for the purpose of recording the annual progress of operations.

* Probably 30 copies of each will at first be required.

As soon as the map of one forest is ready, I would suggest that you should first endeavour to obtain a manuscript copy of the 1-inch map, and after examining it, forward it to me with your observations and suggestions. I would then place myself in communication with the Topographical Survey Department regarding certain formal matters connected with these maps.

9. *Protection and management of the Reserves.*—With reference to para. 2 of my letter quoted above, I would now beg to explain in detail my views on the distribution of the Subordinate establishment in these Reserves. If possible, a Darogah should be in charge of each Reserve, or if this cannot be arranged, a man of the class of Jemadars. Each Reserve should ultimately be made into a distinct executive charge.

In course of time, when competent men are available, these Subordinate Officers should be entrusted with the entire executive charge of their forests, the duties of the Assistant and Deputy Conservators being confined to inspection and control, and, in certain cases, to the executive charge of certain operations, or forests of special importance.

In the Boree forest, and in some of the others, you have already carried out this measure to a certain extent, and I would suggest your persevering in this system, which I feel sure will ultimately yield satisfactory results. It appears to me that, with our present Forest revenue, Officers of the Upper Establishment are too expensive to be employed on executive work. As it is, the executive charges, according to the above suggestions, will be very extensive. They will vary from 40 to 200 square miles, or from 25,600 to 128,000 acres. In the State forests of France and Germany, the executive charges on an average vary from 5,000 to 20,000 acres. I feel assured that the Forest revenue from these Reserves will increase very considerably ; it may then be

possible to sub-divide some of the larger charges, to improve the prospects of the Subordinate Officers, and to increase the number of inspecting and controlling Officers.

10. One of the most important steps towards attaining the above aim is to make arrangements for an efficient training of the men intended to fill the post of Executive Forest Officers. On this subject, I have, with your concurrence, submitted definite proposals to the Chief Commissioner.

11. Until competent men are available, the Reserves must, I believe, be managed under a sort of mixed arrangement, the controlling Forest Officers taking their share of executive work wherever such may appear necessary. But I would not allow this to interfere with the introduction of the arrangement suggested above, of placing each State forest in charge of a Darogah or Jemadar.

12. The ordinary place of residence of this Officer should be fixed in, or close to, the forest. Wherever this can be done, I would suggest that one of the forest villages be selected. There would be no objection against the Darogahs residing for a few months of the year at another place, if such should appear expedient. At their regular place of residence, rest-houses should be built to facilitate the tours of inspection by the Controlling Officers. On this subject also I have submitted proposals to the Chief Commissioner; and I would suggest for your consideration that a garden for fruit trees and vegetables be established near each rest-house, and be placed in the Darogah's charge.

13. Under each Darogah, I understand there will be a number of Watchers, and I would suggest that, wherever such an arrangement may appear expedient, the Reserves be divided into Sub-divisions, each to be in charge of a Forest Watcher. The residence of these Subordinates should be fixed. Their duties will mainly be the protection of the forests, but the Darogah should be at liberty to employ them in other work as far as it does not interfere with their principal duties. They should not, however, without the special authority of the Inspecting Officer, leave the Reserve to which they are posted, except when their duties regarding the protection of the Reserve should require it.

14. It may not as yet be practicable or advisable to assign to each Watcher a defined charge and defined responsibilities. Where this is done, I would suggest, for your consideration, whether these men might not be held responsible for the keeping clear and the maintenance of the boundary lines and boundary marks. Within the beat assigned to them, all boundary lines, inner and outer, would then be in their charge, and they would be required to patrol them regularly once a month, and to report their having done so to the Darogah.

15. The Darogah himself should at least once a year go round the whole of the boundary lines of his Reserve, and the report of his having done so should be submitted to the Conservator through the regular channel. The season for this circuit should be fixed. I would suggest that the line be cleared, and the posts be white-washed after the end of the monsoon, and that the circuit should take place on the completion of this work. I understand that you have already issued orders to the Darogahs in charge of the Bowergurh and Boree Reserve personally to inspect the boundary lines once in three months; experience will show whether annual circuits are not sufficient in those forests where separate beats are assigned to each Watcher.

When a Darogah or Watcher gives over charge of his forest, a circuit of the boundary lines should, as a rule, be made by both the relieving Officer and the former incumbent, and a joint report of this having been done should be submitted. In exceptional cases, this joint circuit might be dispensed with, but only on the special authority of the Conservator.

As soon as the ordinary place of residence of the Darogah, and the Sub-divisions of Watchers, have been fixed in any forest, I shall feel obliged by your communicating to me the arrangements made in this respect.

16. I will now proceed to offer a few remarks regarding each Reserve visited by us, and will begin with the Boree forests. It is most satisfactory

that fires have been kept out from the whole of the Boree forest ever since the rains of 1865, and from a portion of the forest since 1864. The principal advantages of this measure that are now apparent have been as follows :—

1st.—A quantity of old timber that was lying about the forest has been saved.

2nd.—Trees of all ages have been protected against further injury by fire.

3rd.—Young trees of all kinds and bamboos have sprung up all over the blanks and grass lands in the forest.

4th.—The ground has been covered throughout the year, and has been kept more moist and cool than formerly; and less loose soil is washed away where the ground is uneven.

5th.—The general vegetation in the forest is more luxuriant than in the neighbouring forests; the grass, trees and bamboos remain green longer.

I understand that the expenses of keeping out fires from the Boree forest have been insignificant, owing to the very favorable nature of its boundaries which have made protection comparatively easy.

I would suggest that a distinct account be kept of all outlay incurred on that account in this and in the other forests. It is not impossible that some time hence objections may be raised against the continuance of this measure, and it will then be useful to have reliable data regarding the expenditure caused thereby.

17. Your success in keeping out fires from this forest during the last four years would appear to render all further remarks unnecessary on this subject, but I cannot help thinking that it would afford additional security if the outer boundary line, as far as it is accessible, and the principal roads and foot-paths leading through the forest, were patrolled daily during the hot season when the risk from fires is greatest. I understand that a number of labourers, occasionally as many as 60, are regularly employed in the forest in clearing Division paths, cutting creepers, and in the plantation. Some of these men should, I think, be employed in assisting the Watchers to patrol these lines.

18. Paths through the forest have been cleared on the hills north and south of Herapala. These paths are very useful to make this part of the forest accessible, and they facilitate work and control; but they do not in all cases divide the forest into convenient working divisions, and I think both objects might be united.

The Puchmurree Road, which enters the forest at Jolee village, and leaves it above the site of the deserted village of Bobye, has been made by you so as to serve as an excellent line of demarcation, dividing the forest into two main blocks, which may be designated as the North and South Divisions.

19. The main Divisions should again be sub-divided by lines running from the Puchmurree Road to the boundary on either side. The clearing of two lines which reach the southern boundary near Barut village has nearly been completed, and other lines should be cleared wherever practicable. In the first instance, I would recommend that all existing foot-paths leading in these directions be cleared and widened; other lines will suggest themselves afterwards. I need not explain that in a hilly country these division paths cannot of course run straight, but must follow the configuration of the ground, and the shape of the blocks and compartments will entirely depend on the run of the hills and valleys; but subject to these conditions, the main lines should always, as far as practicable, connect the centre road with the outer boundaries of the forest.

20. As there is no object at present in extending these lines in the northern part of the forest up to the foot of the rocks, I would suggest that all paths cut be joined by one or several lines running more or less parallel with the Puchmurree Road, from the Sonebudr River near the Gorye, to the eastern boundary of the forest. The different lines here indicated I would call Main division paths, and I would suggest that, during the hot season, they be kept clear of inflammable matter, so that they may serve, in case of accident, to

check the progress of fires. This may perhaps be done by burning a broad belt on either side early in the season. As suggested above, the principal Main division paths should be patrolled regularly during the hot season.

21. The crest and tops of some of the hills near Herapala and Boree have already been made accessible by cutting paths. This is a very useful measure, and I would suggest that the tops and crests of all principal hills within the Reserve be thus made accessible. During the latter part of the dry season it may occasionally be found useful to keep watch at such points, and to arrange for signals in case of fire.

Further experience will show you which of these suggestions can be carried out without undue expense, and with most chance of success.

22. The Main division paths I would suggest should, if possible, be cleared before the Topographical Survey of the forest is taken up ; these lines will assist the Surveyors, and they should, if possible, be surveyed by them, and entered on the map that will be furnished to you.

When the map is completed, and the Main Division paths entered, it will then be time to agree as to the blocks and compartments into which the forest should be divided with the view of establishing a regular plan of operations.

I shall feel obliged by your keeping me informed from time to time of the progress made in respect to these matters.

23. Good progress has been made in the cutting of creepers ; wherever I examined the forest in the vicinity of the paths, I found most creepers cut, but a good deal remains to be done in the interior of the forest. I understand that some blocks of hills not visited by me have been entirely cleared of creepers, and that it is intended to continue the work according to the same plan. This is very satisfactory. Although the blocks and compartments have not yet been finally formed, one hill, or block of hills, might be taken in hand first and completed before the work is commenced in another locality. The great importance of this operation will not be denied by those who have had an opportunity of seeing the evil effect of creepers in causing an irregular and stunted growth of the teak.

24. *Thinning operations.*—Major Pearson's suggestions in paras. 14 and 15 of his Inspection Report of the Western Forests, of 12th February 1868, treat of this subject. The first point to look to is, as your predecessor correctly said, to take measures to favour the teak by the removal of the other trees. A certain mixture of bamboos and other trees undoubtedly benefits the development of teak, and, in some parts of the Boree forest the existing mixture appears to me to be a very happy one, with which I would not interfere. In other parts, however, I would, as an experiment, cut down or girdle (trees that have a distinct heart-wood only) a proportion of the other trees, except mowah, dhamin, blackwood, khair, tinsa and other trees that are really useful, the object being to give more room and light for the growth of teak.

25. Old dhyas and blanks, as well as grass lands where teak is likely to grow, I would plant up, and in places I would, as an experiment, throw out seed as suggested by Major Pearson ; I would not, however, throw out seed without some previous preparation of the ground. In grass land, lines 10 feet apart might be cleared, and the ground dug up, seed might then be sown before the commencement of the rains in continuous lines. It will, I believe, be found sufficient to tread down the seed into the loosened soil. The grass between the lines should be left standing.

26. *Planting operations.*—It is quite evident that, in the rearing of teak by artificial means, you have in these forests to contend with enemies which are not known in other Provinces. Of these one of the most important, as correctly explained by you, is the severe night frost of December and January.

The small plantation on the top of the hill above Boree on an old dhya appeared to me in a satisfactory condition. These seedlings were planted out when more than a year old. Mr. Davidson states that he arranged for the tap-roots to be cut back at the time of transplanting.

Last year's seedlings in the nursery will afford you another opportunity of testing the practicability on a large scale of transplanting one-year seedlings with tap-roots from 2 to 3 feet long. I would suggest that they be planted out in localities distinct from this year's seedlings. The tap-roots should be cut clean, and not hacked.

27. Upon the whole, you will probably have a large quantity of seedlings for transplanting this season, and I would recommend your planting a portion on suitable grass land and on blanks in the forest.

In such localities, and I believe generally, you will find that planting out in lines will be the most convenient arrangement for many reasons.

By way of experiment, I would make the lines 6 feet apart in some places, and 10 feet apart in others. Within the lines, I would suggest that the pits for the reception of the plants be dug from 2 to 3 feet apart.

If you can afford to fill up the pits partly with good soil, you will greatly assist the growth of the transplants. Grass, brushwood, trees and bamboos standing between the lines, I would not interfere with; they will serve as shelter to the young plants against frost and sun. As a matter of course, no plants should be placed near or under trees and brushwood, for teak requires a good deal of light; you will understand that I am speaking here of blank places in the forests and of open grass land.

28. Next year's nurseries I would make upon a somewhat different plan. Long narrow beds, 3 feet wide, divided by paths from each other; some might be sunk, and others raised, to test the difference. The beds should have from 6 to 9 inches of the very richest soil you can procure. Some beds might, by way of experiment, be heaped upon a hard surface to promote the formation of lateral roots.

I would suggest your having at once a few pits dug near the nursery, to be filled with alternate layers of leaves and earth mixed with ashes. A year or two hence this will give you excellent vegetable mould for your nursery beds.

The seeds should be sown in lines across the beds; my experience hitherto has been that they should only be covered very lightly. A mixture of rotton leaves and loose soil has been found to be an excellent cover.

In this climate the beds require, I believe, to be covered slightly with straw during the hot season. As an experiment, some beds might be left uncovered, and over others a slanting roof of loose grass might be laid on bamboos supported by sticks from 2 to 3 feet high; the roof should be open to the north-east.

I shall feel obliged by your informing me from time to time regarding the progress of planting operations in Boree.

29. *Arrangement of felling operations in Boree.*—I understand that there is no demand at present for bamboos, or for any wood except teak. To judge by the annual rings, the rate of growth of teak is slow; the result of my observations was that a tree of 120 years attains a girth of a little more than 4 feet. This would give not less than 200 years for the age of a tree 6 feet in girth. I had no opportunity of examining sections of trees of that size. Hereafter the rate of growth will doubtless become more rapid with the improvement of the soil through the keeping out of fires. Meanwhile, however, considering all circumstances, it appears clear that trees above 5 feet in girth must be considered as ripe for felling, and that under certain circumstances even a lower minimum girth may be fixed.

30. No data are available for forming an estimate of the quantity of mature trees standing in the forest; nor have I obtained any data as to the number of trees felled annually during the last few years.

As far as I could see during my late examination of the forest, a considerable portion, perhaps two-thirds or even a larger proportion, of its area is stocked with teak, generally associated more or less with bamboos and other trees. Most of the teak-producing tracts are stocked with young and middle-aged timber, here and there mixed with mature trees. In such places all mature trees may be felled if marketable. In some localities, however, such as part

of the hill south of Herapala, on the right bank of the Boree River, the large trees predominate, and the younger classes are scarce. Here the selection of the trees to be felled requires caution, and a portion of the large trees only should be removed at present

On no account should trees be felled where they stand isolated, such as the four trees which we found felled closed together at a place north of Jolee.

No tree should be felled unless marked by the Executive Officer in charge of the forest.

31. I would suggest that, although no systematic plan of operations can as yet be laid down, a certain regularity be observed in this matter. I think it would be quite feasible to commence felling operations at one end of the forest. You might, for instance, first cut all timber in the block of hills limited by the Sonebudr in the west, the main road in the north, and the Boree River in the south.

Or, should a Main division path be cut through this block, the western half might first be taken in hand; and until all available trees have been removed from that portion, there should be no felling in any other block.

Felling and dragging of timber makes a forest accessible, and simultaneously the operations for improvement, such as cutting creepers and thinning, might be carried on.

32. At the close of operations in one block, a report should be submitted to the Conservator, showing the number of trees felled, the number of mature trees left standing, and other work done in the block.

With this report proposals should be made regarding the next block to be taken in hand, but the Conservator should reserve to himself the power of passing orders regarding the commencing of work in a new block.

No data regarding the growing stock being available, no figure can be fixed as the maximum annual yield of the forest. It will suffice to draw attention to the fact that the second class trees will probably require a considerable time, perhaps 50 years, to attain the size of a first class tree. Now, as the forest is upon the whole well stocked with young and middle-aged trees, there is evidently no necessity for delaying the felling of all mature timber until the whole of this period (estimated for the sake of argument at 50 years) shall have expired.

Nor may it be considered necessary to husband the growing stock in order to supply an equal quantity of timber annually.

33. But, on the other hand, the fact should not be lost sight of, that within a short series of years the whole marketable stock of timber now standing in the forests of Zemindaree and Malgoozaree Estates will be exhausted. I therefore quite agree with you in thinking that it will be prudent, during the next few years, to limit felling operations to a small quantity annually.

This need not prevent the felling of larger quantities in exceptional cases, if a pressing demand should arise.

When the working divisions have been formed, and an estimate of their contents is made, then it will probably be found possible to assign to each year one or several compartments, and thus to maintain within certain limits, and for a certain period, a nearly equal annual yield from this forest.

34. *Plantation in the Bowergurh forest.*—Regarding the other Reserves visited by us, the following remarks apply to all alike. For Bowergurh only I will offer a few special observations concerning the teak plantation in the Machna Valley above Baka Burda.

I quite argee with you as to the importance of continuing and extending planting operations at this locality. The soil is excellent, and the results, as far as they have gone, are favourable. Here also, as you will have a large quantity of seedlings this season, I would suggest your planting out open grass lands and blanks in the forest, and where you may make clearings, there will be no necessity for clearing the ground completely. On the contrary, it may be preferable to leave a portion of the trees and bamboos standing for shelter. In all cases I would plant out in lines, the distance between the lines to be from 6 to 10 feet, and the plants within the lines to be from 2 to 3 feet apart.

Regarding the formation of nurseries and other matters, I would say that the remarks offered concerning the Boree plantation apply to this also.

35. I observed that the transplants of 1867 had been watered throughout the present dry season. This I am not inclined to think an advantage. These plants have attained an average height of 26 inches, and did not, I think, require this artificial stimulus. On the contrary, teak requires periodical rest during the dry season. But as they have brought forth fresh leaves, watering had better be continued this year until the monsoon sets in. Wherever it can be done without undue expense, transplants should be watered during breaks in the monsoon, but not during the dry season.

In clearing the jungle for planting, I noticed that a number of teak trees had been left standing singly. These trees, I fear, may suffer from having suddenly been isolated. In such cases it would be better to leave trees standing in groups, teak and other kinds, and to plant up the ground between these groups.

36. *General remarks regarding the Bowergurh, Sowleegurh, Rajaboraree and Kaleebheet Reserves.*—Nearly the whole of the Boree forest, as far as I saw it, is either productive forest, or can be converted into productive forest. The only village with cultivation is Jolee ; perhaps it may hereafter appear advisable to induce people to settle at one of the other deserted villages also ; but cultivation in this forest on a large scale need not, I think, be encouraged. The position of the Boree forest under the scarp of the Puchmurree hills probably makes its climate more moist than that of most other forests in the Western Division, and owing to the nature of the rock which composes its hills, granite, sand-stone and shale, its soil is particularly rich and varied. These advantages should be turned to the fullest account for the rearing as productive a forest as possible.

Grazing of cattle is prohibited at present throughout the forest, except to the inhabitants of the two forest villages Jolee and Herapala. This is an excellent measure, not so much on account of the damage done by the cattle browsing and treading down seedlings, but, *first*, because it appears necessary fully to assert the rights of the State as proprietor of the forest by excluding cattle for a series of years, and, *secondly*, in order to guard more effectually against fires. There are many tracts in the Boree where, after the lapse of a series of years, grazing may be allowed, provided the risk of fire is not increased thereby.

37. All other reserves visited by us—Bowergurh, Sowleegurh, Rajaboraree and Kaleebheet—are situated differently. Their extent is much larger ; with some exceptions in Bowergurh and Sowleegurh, their geological formation is more uniform, and the prevailing rock (trap) is less favourable for the growth of forests in the dry climate of these Provinces. Consequently, they include considerable areas of land which it will be very difficult to turn into productive forest, and which may, for the present at least, be best utilized by permitting cultivation and the pasture of cattle.

Regarding the conditions under which cultivation and grazing may be allowed in certain portions of these Reserves, I have addressed the Chief Commissioner, and would here only draw your attention to the circumstance that, under existing laws, there is, as far as I am aware, no bar to the growth of prescriptive rights in the State forests to any extent, and that, therefore, unless a change should take place in Forest legislation, it will be necessary to exercise great caution and foresight in permitting any usage and privilege to continue which may, in course of time, grow to be considered a prescriptive right.

38. There are, however, in all these Reserves, valleys and hills either stocked with promising forest, or capable of being made productive. These more valuable forest lands occupy a considerable portion of the Reserves, and are generally so interlaced with the lands of inferior quality, that it would have been impracticable to give the forests compact shape and convenient boundary lines without including the inferior lands.

While, however, maintaining that the Forest Department should exercise complete control over the whole of the Reserve, it appears to me evident that the treatment of both classes of lands should be different.

39. In most cases the lands less suited for the production of forest will be found to occupy the tops of the hills, and natural terraces on their sides. These, where the trap formation prevails, generally form extensive flats with shallow soil, well-suited for the intermittent and shifting cultivation of these hills, but not generally very favourable for the growth of forest. In such localities I would encourage cultivation, and there would be no object in excluding cattle, but wherever there are no pre-existing rights of occupancy or other prescriptive rights, all arrangements under which fields would be taken up, or cattle allowed to graze, should be renewed from year to year, and it should be distinctly understood that these leases are liable to cease and terminate at the close of any year.

I need not explain the great advantages which the management of the forests will derive from the existence of inhabited villages in the Reserves, the lands of which are held under annual leases.

It appears a question whether dhyas should be permitted in these parts of the Reserve. I understand that they are strictly prohibited in the Reserves, and that the lopping of branches also for manure is not allowed at present, and for the first few years I am of opinion that it will be better to continue these prohibitions. Wood and bamboos for building and agricultural purposes, as well as for fencing their fields, might certainly be permitted, and it will be a matter for consideration whether it would not be well to assign to each village certain tracts of forest land to provide for their requirements.

40. Those portions of the forests, however, which seem capable of being converted into productive wood-lands, should be taken up one after another; fires and cattle should be excluded; they should be divided into blocks and compartments, and the work of improvement, as sketched out for the Boree forests, should then be carried on in a systematic manner. In some instances, these selected forests include the only springs or streams of water in the vicinity, and in such cases there will be no objection to admit cattle along certain roads opened out for the purpose. In other localities there is actual cultivation in the heart of the very best forest land, and in places which would be suitable for the artificial cultivation of teak. In such cases, it will probably be convenient to wait until the land is thrown up, but I would not permit, where it can be avoided, the breaking up of fresh land wherever it is intended to improve the forests.

41. In one respect the other Reserves have an advantage over Boree. They are more accessible and nearer to a market. From some of these, there is, I believe, a demand for bamboos and timber of the inferior kinds, and a small but increasing revenue may be expected from this source.

In those forests, which are specially set apart for improvement, I would not permit any promiscuous cutting of bamboos and other woods all over the forest. There need, however, not be any delay until the blocks and compartments are finally formed, provided the precaution is taken every year to assign a well-defined locality for the cutting of bamboos and other woods.

42. The same suggestion applies to the arrangements under which teak is to be cut in the selected forests. As explained for the Boree forests, the localities assigned for the annual cuttings should be fixed with the Conservator's sanction, and a special Report should, I think, be submitted to you of each year's felling operations.

In the Divisional Office, I would suggest that a book be opened for each Reserve, showing the localities, and result of operations of felling and improvement of the forest for each year.

It would, I think, be an advantage if you would keep me informed of the progress made in the selection of special forest tracts in these Reserves, and in their management.

43. Some of the preceding remarks and suggestions will, I believe, be found applicable to the Reserves of other Divisions also. I shall feel obliged by your informing me, from time to time, in what respects these suggestions should be modified to suit the requirements of the different Divisions.

No. $\frac{1087}{737}$, dated 19th April, 1869.

From—Secretary to the Chief Commissioner, Central Provinces,

To—Inspector General of Forests.

I am directed to acknowledge the receipt of a copy of your letter No. 85, dated 9th April, to the address of the Conservator of Forests, and I am to express the Chief Commissioner's thanks for the thorough manner in which you have considered the various questions treated of in your letter of instructions to the Conservator, and for the valuable suggestions you have made.